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Original Communications.

THE PHYSIOLOGICAL AND THERAPEUTIC ACTION OF HYDRASTINE.

By Thos. J. Mays, M.D.

HYDRASTIS CANADENSIS, or golden seal, as it is commonly called, has been long and favorably known and used by the eclectic practitioners of this country. It is claimed by them, and with good reason too, that it exerts a powerful tonic influence upon the mucous surface of the alimentary canal, nasal passages, etc., when administered internally, and externally it has proven itself an excellent remedy in chronic mucous inflammations of the eye, mouth, bladder, etc.

In 1851, Mr. A. B. Durand discovered a powerful alkaloid in the plant, which was further investigated by Mr. F. Mahla, of Chicago, and which is now called hydrastine. Dr. King,* the ablest exponent of that school of medicine, attributes the therapeutic action of the plant to this alkaloid. The latter has recently received a good deal of attention from various experimental physiologists, with the desirable result of placing its action on a very intelligent basis. Thus, Slavatinski ("Ueber die Pharmakologische Wirkung des Hydrastins," *Med. Obosrenje*, November 16,

* American Dispensatory, p. 432.

1884, p. 346) found that the subcutaneous injection of 1 to 2 mg. produces disturbance of co-ordination, diminution of reflex action and of the pulse, and acceleration of respiration in the frog. In doses from 6 to 10 mg. it gave rise to transient spasm, complete paralysis, and diastolic arrest of the heart. The irritability of the motor nerves was enhanced, while that of the sensory nerves was depressed. In mammals he saw no alteration in the blood-pressure.

Dr. Fellner (*Centralblatt für die Med. Wissenschaften*, November 24, 1884, p. 417) details in a condensed form the physiological results which he obtained from the subcutaneous injection of the fluid extract of hydrastis canadensis. All the experiments were performed on curarized dogs, and the influence of the drug on the blood-vessels, the heart, the stomach, the small intestines, and the uterus was closely observed. He obtained the following results:

1. Large doses produced a transient rise in the blood-pressure, which was followed by a protracted depression of the same.

2. Medium doses are followed by the same phenomena, only in a less pronounced degree.

3. Small doses produce a very slight diminution of the blood-pressure, which is very soon succeeded by a permanent rise. Repeated injections of medium doses had the same effects as a single large dose, and repeated injections of small doses had the same influence as a single medium dose.

4. Division of the splanchnic nerves did not materially alter the above-described effects of small and medium doses, nor did compression of the abdominal aorta.

5. However, after division of the spinal cord in the neck, it produces no rise in the blood-pressure.

6. During the period when large doses exercise their depressing influence on the circulation, both strychnine and dyspnœa elevate the blood-pressure.

7. During the stage of lowered blood-pressure the alimentary canal becomes hyperæmic, while during the stage of elevated blood-pressure the same becomes pale and anæmic.

8. In the first stage of the action of large and medium doses considerable slowing and occasional cessation of the pulse occurs. Division of the vagi counteracts or entirely prevents this.

9. During the stage of heightened blood-pressure and general vascular contraction the whole uterus undergoes spontaneous contractions.

Dr. Bartholow (Lloyd's "Drugs and Medicines of North America," vol. i. page 156) ascertained that in frogs hydrastine produces stiffness, hyperæsthesia, convulsions, and diastolic arrest of the heart. The same phenomena were produced by it in the rabbit, in which he also observed a slight lowering of the blood-pressure. This author concludes from his experiments that the convulsions are spinal, that it exhausts the irritability of the motor nerves and muscles, and that chloral is probably a physiological antidote to it.

I think the following *résumé* comprises the chief points in the above-given experiments on the action of hydrastine, viz.: That in small doses it elevates and in large doses depresses the blood-pressure; that in small doses it produces contraction and in large doses dilatation of the vascular walls; that through the period of elevated blood-pressure it inhibits cardiac action; that in small doses it produces anæmia, and in large doses hyperæmia of the alimentary surface; that it induces uterine contractions; that it enhances the irritability of the motor and depresses that of the sensory nerves; and that it exercises its control over all these organs through a central and not through a peripheral influence.

While all these experiments cover valuable ground and bring out very clearly various phases of the physiological action of this alkaloid, it seemed very important to develop more definitely whether it acts chiefly on the sensory or on the motor nerves, and with this end in view the following experiments were instituted during June and July, 1885:

Experiment 1.—To test the action of hydrastine hydrochlorate on the reflex frog when locally applied, by immersing the right leg at intervals in a three per cent. solution, and by comparing the minimum reflex irritability of both legs by connecting them with a secondary coil of an induction apparatus by means of a commutator.

A.M.	Left foot.	Right foot.
10.15. Minimum reflex irritability before immersion.....	10	10
Immersion of right leg from 10.18 to 10.22.		
10.22.....	10	9
Immersion of right leg from 10.27 to 10.30.		
10.30.....	10	8.5
10.35 to 10.36. Immersion of right leg.		
10.36.....	10	8.0
10.38. General spasm of posterior extremities on minimum stimulation.		

A.M.		Left foot.	Right foot.
10.44.	Spasms spontaneous, as well as being easily induced by touch. Hyperæsthesia in left leg and whole body.		
10.46.	General spasm induced more easily by touching left than right foot.		
10.55.	Spasms induced.....	12	6
10.57.	Spasms induced.....	10	6
10.58.	Spasms can hardly be induced by even striking right foot, but are provoked by a mere touch of left foot.		
10.59.	Spasms induced.....	9	6
11.00.	Spasms more readily provoked by touching front than hind legs.		
11.05.	Spasms induced.....	8	5
11.10.	Spasms induced.....	8	4
11.12.	Spasms induced in left leg at	7	No response at 0
11.14.	No spasms induced in either leg at 0.		

Experiment 2.—To test whether the above-shown interference with reflex sensibility is due to a central or peripheral influence. The blood-vessels of the right leg were ligated in the region of the thigh, in order to obviate the general absorption of hydrastine. The right leg was immersed in a one and a half per cent. solution of the salt, and its minimum reflex irritability tested and compared with the opposite leg for some time, after which the left leg was immersed and the effects watched. Reflex frog large. Brain pithed at 5.15 P.M.

A.M.		Left foot.	Right foot.
6.20.	Minimum reflex irritability before immersion.....	12	15
6.23 to 6.26.	Immersion of right leg.		
6.27.....		12	11
6.30.....		12	11
6.31 to 6.33.	Immersion of right leg.		
6.33.....		12	11
6.34 to 6.36.	Immersion of right leg.		
6.37.....		12	10.5
6.42.....		12	11
6.44 to 6.48.	Immersion of right leg.		
6.48.....		14	12
6.50 to 6.55.	Immersion of right leg.		
6.55.....		14	12
6.56 to 7.06.	Immersion of right leg.		
7.06.....		14	10.5
7.12 to 7.15.	Immersion of left leg.		
7.15.....		12	10.5
7.17 to 7.20.	Immersion of left leg.		
7.20.....		12	10.5
7.22 to 7.25.	Immersion of left leg.		
7.25.....		11.5	10.5
7.28.....		11.0	10.5
7.30.	General spasm on touching.		
7.32 to 7.35.	Immersion of left leg.		
7.35.....		10.5	10.0
7.42.....		10.0	9
7.43.	The slightest touch of the right or ligated leg is sufficient to call forth a spasm, while a number of sharp taps on the left are required to induce the same.		
7.44.	Minimum reflex irritability.....	9.5	9.5
9.46.	Minimum reflex irritability.....	9.5	8.5
8.10.	No blow or tap, however forcible, on either foot will serve to call forth a spasm. Striking the anterior extremities will quickly induce one.		

This experiment undoubtedly shows that a reduction of sensibility is brought about by a local peripheral action of hydrastine; but that it exerts this influence much more readily and effectively if it is absorbed, and thus allowed to come in direct contact with the spinal centres of sensation.

Experiment 3.—To test the action of hydrastine on the reflex sensibility of the frog, when introduced subcutaneously in small doses. Blood-vessels of right leg ligated in region of thigh. Reflex frog small, and prepared at 7.00 P.M.

P.M.		Left foot.	Right foot.
	Minimum reflex irritability before injection.....	14	12
8.00.	Injected 1 c.c. of one per cent. solution (1 mg., or $\frac{1}{14}$ gr.) in left back.		
8.05.....		14.5	13
8.08.....		13	12.5
8.11.....		12.5	13
8.14.....		11.5	13
8.17.....		11.0	13
8.20.....		10.5	12
8.23.....		10.5	12
8.26.....		10.0	12
8.27.	Injected same dose in right back.		
8.29.....		9.0	9.0
8.31.....		7.0	9.0
8.34.....		No reflex at 0.	7.0
8.36.....		No reflex at 0.	5.0
8.38.....		Reflex gone in both at 0.	
9.00.	Minimum irritability of both sciatic nerves.....	0	50
9.05.	Minimum irritability of both sciatic nerves.....	0	20
9.10.	Minimum irritability of both sciatic nerves.....	0	15
9.12.	Heart arrested in diastole.		

This experiment shows the same results as those which were yielded by Experiment 2, although brought out by a different method. It demonstrates that hydrastine exerts both a

peripheral and central anæsthesia. A number of other experiments have been made which demonstrate that hydrastine has a decided affinity for sensory nerves, and affects these before it does the motor nerves, and that it exerts a great deal of its influence through the spinal cord and not through the cranial centres; but, in view of the fact that its physiological action has been brought out so well by other observers, I do not deem it necessary to publish these. The results of my experiments on the frog may be summed up as follows:

1. That it produces paralysis in the early stage of poisoning, which is followed by convulsions.

2. That the convulsions are chiefly spinal in their nature.

3. That a stage of hyperæsthesia precedes that of convulsions.

4. That it depresses sensation or blunts sensibility when locally applied.

5. That it affects the posterior before the anterior extremities.

6. That it affects sensation before motion.

7. That it affects the sensory nerves principally from the centre to the periphery, and not *vice versa*.

On Man.—My friends Drs. Seiss and Stevenson kindly aided me in ascertaining its physiological action on the human body, at least in so far as its influence on the pulse and on local sensibility is concerned. It was tested both subcutaneously and *per os*,—five times by each method. A copy of the protocol of three experiments with the subcutaneous method reads as follows:

NO. 1.

P.M.
8.44. Pulse 68.
8.55. Pulse 68.
9.00. Injected 6 minims of one per cent. solution of hydrastine (P. D. & Co.), ⅛ grain, in left forearm directly below elbow.
9.05. Areola around seat of injection numb.
9.10. Pulse 72.
9.23. Pulse 72. Red blush around seat of injection.
9.25. Numbness over ulnar region of hand and little finger.
9.30. Pulse 68.
9.37. Pulse 66.
9.45. Pulse 64.
9.52. Whole arm below seat of injection benumbed to some extent.
9 54. Pulse 66.
10 00. Arm below seat of injection itching.
10.05. Pulse 60.
10.15. Pulse 64.
10.30. Pulse 60.
10.59. Pulse 60.
P.M.
11.00. Feels very well. No bad effects except a soreness around seat of injection. Sensation restored throughout the whole arm.
11.15. Pulse 60. Very full.

NO. 2.

P.M.
8.44. Pulse 76.
8.55. Pulse 76.
8.56. Injected 7 minims of one per cent. solution of hydrastine (P. D. & Co.), ½ grain, in left forearm below elbow-joint.
9.05. Small area around seat of puncture perfectly numb. Can push a needle through skin in this neighborhood without producing any pain.
9.08. Pulse 76.
9.22. Pulse 74. Red blush around seat of injection, which is raised.
9.25. Numbness over ulnar region of hand.
9.35. Pulse 68.
9.45. Pulse 68.
9.50. Blush around injection disappearing, but still a little swelling.
9.52. Whole arm below seat of injection somewhat benumbed.
9.68. Pulse 65.
10.10. Pulse 65. Full.
10.24. Pulse 65.
10.35. Pulse 65.
10.54. Pulse 65.
10.59. Pulse 65. No bad effects, except pain around seat of injection. Sensation in arm restored.
11.15. Pulse 65.

NO. 3.

P.M.
8.44. Pulse 102. Not feeling well, on account of an ephemeral fever due to a slight cold.
8.57. Pulse 102.
9.02. Injected 6 minims of hydrastine (P. D. & Co.), ⅛ grain in left forearm.
9.05. Raised areola around injection.
9.10. Pulse 100.
9.15. Pulse 92. Red blush around seat of injection.
9.25. Numbness over ulnar region of hand.
9.30. Pulse 92.
9.35. Pulse 86.
9.45. Pulse 80.
9.52. Whole arm below seat of injection somewhat blunted in sensibility.
9.55. Pulse 86.
10.00. Arm below seat of injection itching.
10.10. Pulse 84.
10.20. Pulse 86.
10.38. Pulse 82.
10.57. Pulse 80. Feel very much better than at beginning of experiment. Sensation in whole arm restored. Sore around seat of injection.
11.15. Pulse is full and strong, and 80 per minute.

(In no instance was the irritation produced by the puncture of the needle prolonged over twenty-four or forty-eight hours.)

In the following cases it was taken by the mouth:

NO. IV.

P.M.		
8.05.	Pulse 78.	Two hours after supper.
8.10.	Pulse 78.	
8.15.	Pulse 78.	Took 2½ grains hydrastine (P. D. & Co.).
8.20.	Tingling of tongue, as if benumbed.	
8.25.	Pulse 78.	
8.35.	Pulse 78.	
8.45.	Pulse 78.	
8.55.	Pulse 76.	
9.05.	Pulse 76.	
9.15.	Pulse 75.	
9.25.	Pulse 75.	
9.35.	Pulse 74.	
9.45.	Pulse 72.	
9.55.	Pulse 68.	
10.05.	Pulse 70.	
10.15.	Pulse 70.	
10.25.	Pulse 70.	
10.35.	Pulse 70.	
9.15 A.M. next morning.	Pulse 80.	

NO. 5.

P.M.		
8.05.	Pulse 72.	
8.10.	Pulse 72.	
8.15.	Pulse 72.	Took 1½ grains hydrastine (P. D. & Co.).
8.35.	Pulse 74.	
8.45.	Pulse 72.	
8.55.	Pulse 72.	
9.05.	Pulse 70.	
9.15.	Pulse 72.	
9.45.	Pulse 66.	
10.00.	Pulse 68.	Fuller.
10.15.	Pulse 68.	
10.20.	Pulse 66.	
10.30.	Pulse 66.	

NO. 6.

P.M.		
2.20.	Pulse 72.	
2.30.	Pulse 72.	
2.35.	Pulse 72.	Took ½ grain of hydrastine (P. D. & Co.).
2.55.	Pulse 72.	
3.10.	Pulse 72.	
3.25.	Pulse 70.	
3.35.	Pulse 69.	
3.50.	Pulse 68.	Fuller.
4.20.	Pulse 68.	
4.22.	Took 1 grain more.	
4.30.	Tongue feels slightly numb at tip.	
4.50.	Pulse 64.	
5.00.	Pulse 64.	Numbness on tongue gone.
5.25.	Pulse 61.	
5.50.	Pulse 66.	
6.05.	Pulse 68.	

NO. 7.

P.M.		
2.25.	Pulse 77.	Dinner one and a half hours ago.
2.40.	Pulse 76.	
2.45.	Pulse 76.	
2.50.	Pulse 76.	Took 1 grain of hydrastine (P. D. & Co.).
3.05.	Pulse 74.	Tongue tingles like as if it had cocaine.
3.30.	Pulse 73.	
3.40.	Pulse 71.	
4.00.	Pulse 71.	
4.15.	Pulse 69.	
4.45.	Pulse 72.	
5.15.	Pulse 65.	
5.35.	Pulse 69.	

NO. 8.

A.M.		
9.30.	Pulse 80.	Took 2 grains hydrastine (P. D. & Co.).
10.00.	Pulse 70.	
11.00.	Pulse 66.	
12.00.	Pulse 64.	
12.30.	Pulse 64.	

Therapeutic Indications.—These experiments show that in the healthy organization it has a decided affinity for the circulation,—slows the heart, and in all probability elevates the blood-pressure, and also produces local anæsthesia, therefore confirming the experiments which have been made on the lower animals.

Its influence on the circulation in man is certainly pronounced enough to make itself sufficiently obvious; and, when this fact is coupled with the interesting observation of Dr. Fellner, already cited, that in the lower animals it constricts the capillary circulation to such an extent that it produces anæmia of the mucous surfaces in small doses, it should be a valuable agent in the treatment of all hyperæmic and catarrhal conditions of these organs. Especially is this assumption pertinent when we reflect that it has the power to counteract a relaxed capillary circulation, a condition which, in the great majority of instances, is associated with such hyperæmiæ.

Its anæsthetic action, which is not so striking as that of cocaine or brucine when locally applied, nor so evident as that of theine when subcutaneously introduced, is still remarkable for remaining unobserved so long in an agent which is one of the most popular remedies of the day. It has been used locally to soothe irritable surfaces for more than a quarter of a century, yet the credit of first perceiving its local anæsthetic effect on man in a clinical way belongs to Dr. Charles H. Burnett, Professor of Otology in the Philadelphia Polyclinic, who, but quite recently, called attention to this fact in a contribution to *The Polyclinic* for December, 1885, entitled "Hydrastis with Boric Acid in the Treatment of Otorrhœa."

Dr. Edward T. Jackson, while experimenting with a number of mydriatics a few months ago, was the first to notice that hydrastine dilates the pupil to some extent when applied locally.

Dr. William Rutherford, of Edinburgh, Scotland, in his work on "The Physiological Action of Drugs on the Secretion of the Bile," found hydrastis—a resinous substance prepared from the root of the plant by Keith & Co.—to be a moderately powerful stimulant of the liver.

From what has been said, I think it is evident that hydrastine, on account of the properties which it is shown to possess, is most applicable in catarrhal states of the stomach, bowels, eye, ear, nose, and throat, although it is also indicated in other diseased conditions. A familiar picture to the physician is a combination of the following symptoms: An uneasiness in the gastric region and some eructations after eating, impaired appetite, irregular bowels, coated tongue, bad breath, yellow-tinged conjunctiva, etc. This condition is very much benefited by the administration of hydrastine in 1/6 to 1/4 grain (Merck) doses before each meal.

The following is a case of gastric catarrh which was relieved by the fluid extract of hydrastis:

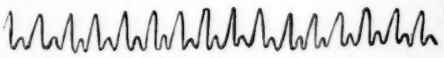
J. D. consulted me November 3, 1879, in regard to a pain and swelling in the region of his stomach. His bowels were regular, appetite tolerably good, except when he had pain. Occasionally vomits after a meal, which is always preceded by pain. Vomit very sour. Tongue clean at the tip, but coated at its root. Subject to this disorder for the last three years. Gave him 3 drops of fluid extract of hydrastis canadensis every three hours. Saw patient again November 8, when he felt very much better. Less pain and constriction in stomach, and no vomiting since. He gradually improved, and with the aid of iron and quinine was fully restored.

A similar disorder of the digestive organs is found as a sequel to intermittent fever. A derangement of the stomach and duodenum is one of the most constant concomitants of this disease, and there is little doubt that through its power of relieving this condition, and of stimulating the biliary secretion, hydrastine has earned the reputation of curing "fever and ague." Dr. Brunton, in his work on "Pharmacology, Therapeutics, and Materia Medica," very beautifully explains the rationale of the action of cholagogues in the treatment of intermittent fever, by eliminating the malarial poison from the portal circulation, and thereby preventing its entrance into the general circulation. Therefore any drug which possesses the power of accelerating the flow of bile often effects a cure, without exercising any direct febrifuge property. A number of years ago I had the opportunity of testing the fluid extract of hydrastis canadensis in intermittent fever, but obtained no results sufficiently positive to warrant the belief that it has any antipyretic virtue.

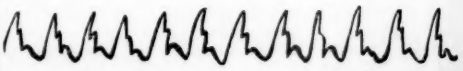
In studying the action of hydrastine clinically it must always be borne in mind that experimentation shows it to have a powerful action on the spinal nervous system, and hence it should be a most valuable tonic to this portion of the body.

The following case of general enervation, resulting from alcoholic intemperance, is one in which the disorder was due probably to a semi-paralyzed condition of the spinal axis, and in which the beneficial action of hydrastine was well brought out.

CASE.—October 1, 1879. B. M. complains of extreme prostration, diarrhœa, irregular chills, fever, and complete loss of appetite. Very much addicted to alcohol. On examination I found a pulse of very low tension, 100 beats per minute, and pressure along and over the spinal column caused a good deal of pain. He received no benefit from quinine. On the 10th instant his condition was much the same as it was at the beginning of the attack, and the following is a typical sphygmogram of a number which were taken at that time:



From this time on he received 4 drops of the fluid extract of hydrastis canadensis every two hours in water. He began to mend immediately. His appetite improved, bowels became regular, the pain in the spine as well as the chills left him, and he felt better in every way. On the 25th of the same month his pulse was 76 per minute, and I obtained the following sphygmogram, which shows a marked improvement in his circulatory organs:



I think the change that occurred in this patient was principally confined to the vaso-

motor nervous system, and is a strong confirmation of the physiological action of hydrastine on the circulation, as brought out by Fellner in his experiments on animals, as well as by my own on man.

In a future paper I hope to develop more fully the practical aspect of hydrastine, and think I will then have clinical material to show that it is a valuable addition to our materia medica.

In conclusion, I will add that there are many spurious articles of the drug in the market, which are either principally composed of berberine, or contain too large an amount of the yellow coloring matter of the plant. Pure hydrastine is a white crystal, and the finest preparation to my knowledge is the hydrochlorate, manufactured by Merck, and which has been chiefly employed in working out the results of this paper.*

1716 CHESTNUT STREET, PHILADELPHIA.

HAMAMELIS VIRGINICA.

BY DRS. JOHN MARSHALL AND H. C. WOOD, PHILADELPHIA.

THIRTY years ago every American housewife, at least every one in the neighborhood of Philadelphia, gathered the flowers of St. John's wort, soaked them in sweet oil that they might impart their virtues to it, and reverently labelled it "red oil." The red liquid thus obtained was carefully hoarded for the comfort of battered young humanity. A little later than this in the local history of our forefathers, arnica was the sovereign remedy, without which no household could be contented. To bring up a child without arnica was considered almost as hopeless as to bring him up without the Bible or the rod of Solomon. Probably owing to the enterprising, if not praiseworthy, efforts of an American drug firm, the days of arnica have been superseded by those of hamamelis, an herb whose reputation has waxed greater and greater until it has reached even a high point with the medical profession.

The enormous sale and mysterious properties of hamamelis have led us to undertake an investigation of the drug.

Unfortunately, the records of the physiological experiments have been mislaid, and we have been unable to give the exact strength of the preparations used in the experimentations. Some pounds, however, of the powdered drug were allowed to macerate several days in water and then distilled. The first six ounces of the distillate were kept separate and used physiologically.

It will be seen that if the activity of hamamelis depends upon a volatile principle, the distillate which we employed was many times stronger than that sold in the drug-stores. Nevertheless, it was thrown into frogs until they were so full that their skins would hold no more, and the effects produced were no greater and no less than those which would have been caused by injections of similar quantities of distilled water. A single experiment was made upon mammals, with no more positive result, and we must conclude, therefore, that so far as the frog is concerned, and probably also mammals, the watery distillate of hamamelis has precisely the physiological value of water. It may be well to add that the distillate used had a very strong odor of the drug, but a chemical examination showed that it contained only the faintest trace of the volatile oil. In order to test the matter further a complete elaborate analysis of the drug was made, as follows:

Three kilogrammes of the finely-powdered dry root were macerated ten days with 6 litres petroleum ether (boiling-point not over 45° C.). A small portion (2 c.c.) of the resulting extract, in an appropriate vessel, was placed under a bell glass, and a stream of dry carbon dioxide passed over it until the odor of petroleum ether was hardly perceptible. The vessel containing the evaporated extract was then immediately covered and weighed. It was then uncovered and exposed to the air exactly one minute and then weighed. No loss of weight was observed. It was again uncovered and exposed to the air for one minute and weighed, without noticeable loss in weight. From this it was concluded that if a volatile oil were present in the volume (2 c.c.) of extract employed, it was in such small quantity as to be unweighable, therefore a larger volume (100 c.c.) of the petroleum ether extract was employed in the same manner as above described, but no loss of weight was observed.

The remaining quantity (about 4 litres) of petroleum ether extract was allowed to evaporate spontaneously until the odor of the ether was entirely dissipated. The residue possessed the odor which is peculiar to the aqueous and

* Merck's hydrochlorate of hydrastine is about six times more powerful than Parke, Davis & Co.'s hydrastine, which has been used to test its action on man because the Merck supply became exhausted.

alcoholic distillates of the root, but this odor lasted only a few minutes. The odor was most likely due to the presence of a volatile oil, but its quantity was so small, or it was so exceedingly volatile, that it could not be isolated qualitatively or estimated quantitatively. The fixed residue remaining in the vessel in which the evaporation took place consisted of fats and wax, which were not further investigated.

One kilogramme of the root, which had been previously extracted with petroleum ether and washed with about 2 litres of the same fluid, was macerated ten days with 2 litres of ethyl ether. The ether extract was collected and evaporated spontaneously, and the remaining residue, which was very small, and consisted mostly of fat which had escaped solution by the previous treatment with petroleum ether, was treated with water containing a couple of drops of dilute sulphuric acid, filtered and allowed to evaporate. Nothing was obtained.

The above-mentioned quantity (1 kilo.) of the powdered root which had been macerated with ethyl ether was now macerated ten days with strong alcohol. The extract obtained was dark brown in color, and contained only tannic acid and coloring matters.

The same powdered root which had been macerated with strong alcohol was dried at 35° C., and macerated twenty-four hours with 3 litres distilled water. The evaporated aqueous extract contained nothing but tannic acid and coloring matter which had not been wholly extracted by the previous treatment with strong alcohol.

The wet mass of the powdered root, after the extraction with water, was macerated twenty-four hours with 2 litres distilled water containing a very small quantity of sodium hydroxide. Nothing other than tannic acid and coloring matter were found in this extract.

The same mass of powdered root which had been extracted with water containing sodium hydroxide was now washed with distilled water and macerated twenty-four hours with water containing one per cent. hydrochloric acid. Nothing but a trace of calcium oxalate was found in the evaporated extract.

A portion of the powdered root which previously had been macerated in turn with petroleum ether, ethyl ether, and strong alcohol was treated in turn with chloroform, carbon disulphide, and benzol without obtaining anything other than fat which had escaped removal by the former treatment.

An examination was now made of the distillate obtained by distilling the powdered root separately with water and with alcohol.

One kilogramme of the powdered root was distilled with water, and the distillate concentrated by several distillations until the final distillate amounted to 150 c.c. This was divided in three equal portions, and to one portion a couple of drops of dilute acetic acid were added, to the second portion a couple of drops of very dilute sodium hydroxide solution were added, and to the third portion nothing was added. The three portions were evaporated in a stream of dry air, but no organic principle could be detected in any of them.

A quantity of water was added to 4 kilogrammes of the powdered root in a large copper retort, and to the latter a long Liebig's condenser was attached. Three litres of distillate, possessing the peculiar hamamelis odor, were collected, and a portion (1 litre) placed in a stoppered cylinder, a quantity of petroleum ether was added, and the two liquids thoroughly agitated, and the mixture allowed to stand twelve hours. By means of a pipette the separated petroleum ether was removed from the cylinder and placed in a suitable vessel and allowed to evaporate under a bell jar in a current of dry carbon dioxide until the odor of petroleum ether had disappeared. There remained a slight quantity of water possessing the odor noticed in ordinary aqueous distillates of hamamelis, but in more marked degree. Upon warming gently on a water-bath the odor entirely disappeared, and upon continuing the evaporation no fixed residue was left in the vessel.

The remaining 2 litres of the above-mentioned distillate were redistilled several times in order to concentrate the volatile substance in small volume of water. The final distillate, amounting to about 400 c.c., was placed in a stoppered cylinder and agitated with petroleum ether, and allowed to stand twelve hours. The petroleum ether was removed with a pipette and evaporated in a stream of dry carbon dioxide until the odor of petroleum ether was no longer perceptible. The residue consisted of a slight quantity of water, in which was observed what appeared to be an exceedingly small globule of oil, and which disappeared in very little time. The odor was strongly hamamelis-like, and disappeared upon warming on the water-bath, as did also the remainder of the liquid in the vessel without leaving any solid matter.

Four kilogrammes of the powdered root were distilled with alcohol until 3 litres of distillate were obtained. The three litres were

twice redistilled, and the distillate obtained in the final distillation, which amounted to 300 c.c., was placed in a stoppered cylinder and agitated, and allowed to stand twelve hours. The petroleum ether was removed and allowed to evaporate in a stream of dry carbon dioxide. When the petroleum ether had completely evaporated, there remained several minute globules of oil, hardly sufficient to produce the tiniest grease-spot on a piece of paper. It possessed the hamamelis odor, which disappeared in a little time.

The results which we have reached with hamamelis are in accord with those of Dr. Hector Guy, of Paris, who came to the conclusion, as the result of numerous experiments, that hamamelis Virginica is not toxic; that it has no special physiological action on the vascular system; and that it contains no alkaloid. We have shown that there is a very large percentage of tannic or gallic acid in the fluid extract, and the results which have been obtained by some physicians by the use of this fluid extract in cases of hemorrhoids and varicose veins are apparently explained by the presence of the astringent principle. The tannic acid, of course, would not come over in the distillation; therefore the much-used and still more lauded witch-hazel, or the so-called distillates of witch-hazel, must depend for their virtues upon the alcohol which they contain and the faith which they inspire.

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THE ACTION OF THE BROMIDE OF NICKEL.

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THE bromide of nickel was first brought to the attention of the profession, I believe, by Dr. J. M. Da Costa as a remedy for epilepsy and kindred disorders. The literature concerning it is limited, and few reports on its use and value have been made. This article is designed to call attention to a remedy which from all reports appears to be of value, in order that additional clinical research may be made by those who have the opportunity to give it a fair trial.

The chief interest in this drug centres on its action on the nervous system, and while analogy points to the belief that its action resembles the other bromine salts, the writer thought it well to perform the following experiments: If 3 grains of this drug be given hypodermically to a medium-sized frog, he rapidly becomes quiet and drowsy, more and more vehement stimuli being required each moment to make him move; pricking with a pin soon fails to call forth any response. After ten minutes have elapsed the drowsiness passes into stupor, and the batrachian allows its toes to be burnt off without moving. The question at once arises, Is this failure of response to pain due to an action of the drug on the receptive centres in the brain, spinal cord, or on the sensory nerves? Analogy, again, tells us that the drug would hardly depress the brain receptive centres without also affecting the same centres in the spinal cord, and the truth of this is demonstrated by the fact that reflex action was lost, so that even a spinal movement of the limb failed to take place. If both hind legs of a frog be partially severed from the body in such a manner that the sciatic nerve is the only bond of union between the limb and the trunk, and a hypodermic of 3 grains of the salt injected into the left leg, it will be found that from the first there is a progressive failure of function on the part of the sensory nerve-fibres, for both electrical and other stimuli fail to call forth any reflex action or other movement in the poisoned member, while much weaker currents and irritants produce marked movements, both of pain and by reflex in the right leg. It seems likely, however, that under these circumstances there is at the very first only a cutaneous loss of sensation, since stimuli of a superficial character, which caused no muscular movements through reflex or pain, when applied directly to the nerve-trunk itself brought forth a response. I reiterate that this condition was only at the very first and of short duration. This experiment was now repeated, with the exception that strychnine was given into the posterior lymph-sac at the same time the bromide was injected into the leg for the purpose of stimulating the spinal cord to such a pitch that even the faintest impulse from the periphery would be recognized.

Notwithstanding the presence of the strychnine, which brought on a spasm when the unpoisoned leg was touched, strong galvanization of the poisoned limb at first only brought out slight response, and finally failed to produce any effect at all. Again, it was found that if the sciatic nerve, just as it emerged from the pelvis, was soaked in a solution of 4 grains to the drachm of this salt, stimulation, either of the foot or of the nerve itself, at the point of exposure, caused but slight response, and if the drug remained for five

minutes in contact with the nerve, no impulse apparently reached the cord, even when strychnine was again given for the purpose already detailed. That this was not due to any extraneous cause was proved by having the nerve in the opposite leg as much exposed to the air as its poisoned fellow, and by using the same stimuli to that nerve in order to obtain control results. That the drug affects the efferent nerves as well as the afferent was also proved by like experiments in other frogs. Thus, if the drug was injected into a partially severed leg, or if it was applied for some moments to the nerve-trunk of such a leg, strychnine having been injected into the trunk, it was found that during a convulsion the poisoned leg escaped entirely, while the unpoisoned partially severed leg was tonicly contracted. This experiment was so frequently performed that there can be no mistake as to the result. Along with the failure of the nerve-trunks comes later on loss of muscular contractility, for in a leg to the muscles of which was applied for some minutes the 4-grain solution already named, it was found necessary to increase the strength of the current to twice the strength required to contract the normal muscle.

On the spinal cord the drug exerts its influences very powerfully and rapidly. After the giving of 3 grains hypodermically into the trunk there was progressive failure of reflex motion, and that this was not due to the influence of the drug on the nerve trunk already described was proved by preparing a leg in the same manner as before, and by tying the artery of a leg previous to the administration of the drug, both of which procedures of course protected the nerve-trunks in those limbs. This result was verified by using strychnine and the bromide of nickel together, when it was found that larger doses of the excito-motor were needed to produce convulsions than when no bromide was used. Again, direct stimulation of the spinal cord when the drug was applied to it, failed to produce movement.

If the cut-out heart of a frog be dropped into a solution of the bromide of nickel of the strength of 4 grains to the drachm of water, its movements are instantly stopped, and do not return even when the viscus is immediately withdrawn from the fluid and dipped in pure water to rid it of the poison. Galvanization of the heart-muscle also fails to produce movement, and it is evident, therefore, that this salt must in large doses paralyze the contractile power of the heart-muscle. As a control experiment, the hearts of other frogs were exposed as they lay in their pericardial sacs and the solution above named dropped on them. In a period of time only slightly more prolonged than when the viscus was isolated, the heart stopped in diastole. The same result is also obtained more slowly if 10 grains of the drug are administered hypodermically, the cardiac movements gradually becoming more and more irregular and imperfect, until they stop altogether. According to several manometrical tracings taken from the higher animals, as represented by the dog, it is evident that this salt affects the heart of the mammals in the same manner as that of the batrachian. If a large dose (15 grains) be injected in ten seconds into the jugular vein, the heart is instantly stopped, so that the manometer pen falls almost perpendicularly to the abscissa line. That smaller doses depress the heart also is shown by the fact that even a dose of 1 or 2 grains decreases the height of each individual pulse-wave very considerably, and produces a fall in rate and pressure. If the above-named doses are used, the rate and pressure return in the course of ten seconds to their normal points, but cardiac force, although it recovers slightly, does not ever again regain its former strength. As the size of the dose is increased the cardiac force progressively fails. Large doses depress the arterial pressure very considerably, the fall seeming to be due to cardiac failure as well as to vaso-motor palsy. Both small and large doses momentarily slow the heart, and that this slowing is not due to stimulation of the inhibitory nerve but to weakness seems probable on account of the fact already proven, that the drug is a paralyzant to the heart-muscle; and also because of the feeble pulse-waves which accompany the decrease in rate, and which in no way resemble the pulse-waves of inhibition. Apparent contradiction to this belief lies in the fact that when the heart had been slowed from 192 to 132 beats per minute by the injection of 10 grains of the drug, section of the vagi caused the rate to rise to 186 per minute, with an accompanying rise of pressure due to the increased rate. While at first sight this seems to prove the falsity of the opinion already expressed, I do not believe that it is in reality proof of vagal stimulation for several reasons. In the first place, the increase of rate on section of the vagi did not reach the rate present previous to the dose (viz., 192 per minute), which it should have done had the slowing been due to vagal stimulation. Indeed, under such circumstances, the rate

should exceed by many beats the normal, because before the dose and section the inhibition always present was exerting its effects, while after section of the vagi *all* inhibition was swept away.

The second reason for clinging to the first opinion has already been stated, consisting in the weakness and feebleness of the heart, with the knowledge that in large doses the drug acts as an absolute paralyzant of the heart-muscle. It is very evident also that the drug produces vaso-motor palsy eventually if in large enough dose, from the progressive lowering of arterial pressure from the moment the first dose was given until the last.

Details of experiments showing rise of rate and pressure after section of vagi.

I. Dog; weight, 17 pounds. Bromide of nickel. Arterial pressure already depressed by previous doses.

Time.	Drug.	Press.	Pulse.	Remarks.
4.06.20	.....	84–80	198	
4.06.30	10 grs. of nickel.	88–80	192	Injection begun.
4.06.45	.....	90–80	204	Injection ended.
4.06.55	.....	86–56	180	
4.07.05	.....	56–20	156	Pulse-waves very small.
4.07.15	.....	20–10	132	Vagi cut.
4.07.25	.....	25–20	126	
4.07.35	.....	20–20	144	
4.07.45	.....	30–40	144	
4.07.55	.....	40	174	
4.08.05	.....	44–60	162	
4.08.15	.....	70–80	186	
4.08.25	10 grs. of nickel.	88–66	180	
4.08.35	.....	66–0	.....	Dead.

II. Beginning small doses. Half-grown pup; weight, 17 pounds. Bromide of nickel. March 27, 1886.

Time.	Drug.	Press.	Pulse.	Remarks.
3.47	.....	160–120	108	
3.47.10	1 gr. in 10 c.c.	120–160	114	Injection begun.
3.47.20	.....	160–120	114	Injection ended.
3.47.30	.....	160–124	90	
3.47.40	.....	160–124	84	
3.47.50	.....	166–130	72	
3.48	.....	156–130	90	
3.48.20	.....	156–120	90	
3.50	.....	112–150	120	
3.51	.....	126–150	114	
3.51.10	.....	160–142	114	
3.51.20	2 grs. in 10 c.c.	144–124	120	Injection begun.
3.51.30	.....	140–100	114	
3.51.40	.....	106–140	96	Injection ended.
3.51.50	.....	140–134	90	
3.52	.....	100–130	114	
3.53	.....	120–92	198	
3.53.10	3 grs. in 10 c.c.	120–90	186	Begun.
3.53.20	.....	100–120	192	
3.53.30	.....	120–100	192	Ended.
3.53.40	.....	80–112	216	
3.54	.....	90–144	186	
3.54.10	5 gr. in 10 c.c.	90–110	198	Begun.
3.54.20	.....	106–84	192	
3.54.30	.....	94–80	186	Ended.
3.54.40	.....	80–96	180	
3.55	.....	70–80	198	
3.55.10	7 grs. in 10 c.c.	80–70	188	Begun.
3.55.20	.....	66–80	186	
3.55.30	.....	80–54	180	Ended.
3.55.40	.....	60–44	198	
3.55.50	.....	44–56	218	
4.05	.....	50–90	210	
4.05.10	7 grs. in 10 c.c.	84–90	204	Injection begun.
4.05.20	.....	84–90	204	Injection begun.
4.05.30	.....	84–90	216	Injection ended.
4.05.40	.....	84–64	192	
4.05.50	.....	72–62	198	
4 05.50	.....	66–80	198	
4.06.20	.....	84–80	198	
4 06.30	10 grs. in 10 c.c.	88–80	192	Begun.
4.06.45	.....	90–80	204	Ended.
4.06.55	.....	86–56	180	
4 07.05	.....	56–20	156	
4.07.15	.....	20–10	132	*Vagi cut.*
4.07.25	.....	25–20	126	
4.07 35	.....	20–20	144	
4 07.45	.....	30–40	144	Rise due to section of vagi.
4.07.55	.....	40	174	
4.08.05	.....	44–60	162	
4.08.15	.....	70–80	186	
4.08.25	10 grs. in 10 c.c.	88–66	180	
4.08.35	.....	66–00	.....	

III. Old dog; weight, 12 pounds. Bromide of nickel. March 26, 1886.

Time.	Drug.	Press.	Pulse.	Remarks.
3.20	.....	156–168	144	
3 20.10	5 grs. in 10 c.c.	152–166	144	Injection begun.
3.20.25	.....	154–100	156	Injection ended.
3.20.35	.....	100–74	138	
3.20.45	.....	90–96	96	
3.20.55	.....	94–110	60	
3.21.05	.....	110–128	90	
3.21.15	.....	120–136	84	
3.21.25	5 grs. in 10 c.c.	128–140	84	Injection begun.
3.21.35	.....	136–112	72	Injection ended.
3.21.45	.....	114–120	90	
3.21.55	.....	110–114	108	
3.22.05	.....	110–116	126	
3.22 15	.....	114–120	132	
3.22.25	.....	114–120	144	
3.22.35	.....	116–120	144	
3.22.45	5 grs. in 10 c.c.	120–128	168	Injection begun.

Time.	Drug.	Press.	Pulse.	Remarks.
3.23.55	.....	128–72	132	
3.23.05	.....	50–10	66	Injection ended.
3 23.15	.....	6	.....	Dead; respirations continued after death.

The only clinical report on this drug which I have been able to find is that of Dr. R. Leaman, in the *Medical News* for April 18, 1885, who, after getting unsatisfactory results from its use at first, concludes that the remedy is of great value. The bromide of nickel is a greenish-yellow powder, of a sharp, almost burning taste; when dissolved in water the solution becomes almost grass-green. Notwithstanding its burning taste, the writer quoted says that he has found it borne by the stomach better than all the other bromides, and he also recommends its use in an effervescing form, made by mixing the salt with bicarbonate of sodium and tartaric acid, moistening with alcohol, passing the moist powder through a sieve, and then drying it in a warm closet. He then goes on to say that he estimates that 10 grains of the nickel salt is equal in efficiency, in his opinion, to 30 grains of the bromide of potassium. He believes it to be particularly indicated in those cases suffering from melancholia and hysterical conditions, and quotes cases of sexual melancholia and epilepsy which were much benefited by the use of the drug. The dose he believes to be from 5 to 10 grains, but states that when the effervescing mixture already named is used slightly larger doses are necessary.

A FEW REMARKS UPON THE METHODS EMPLOYED NOWADAYS FOR THE DISPOSAL OF THE DEAD, WITH SUGGESTIONS TENDING TO REMEDY THE PRINCIPAL EVILS OCCURRING AS A RESULT OF THESE METHODS.

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HAPPILY, the dangers to which individuals and the public at large are exposed as regards health, occurring as a direct result of the presence of cemeteries, are so limited, and imbued with so little authenticity, that the necessity of speaking upon a question already solved to the satisfaction of almost all interested parties may be relegated to a position of doubt. But, however, as the author of these lines belongs to the minority, certainly not small, of those who have gradually arrived at a positive opinion that not only the arrangement of cemeteries, but also that certain funeral practices offer grave and unwarranted imperfections, he has not hesitated to formulate objections,—first, as to the manipulation of corpses during the time which elapses between the moment of death and the final burial; second, as to the rules and regulations promulgated by competent authorities upon these subjects; and, third, upon projects proposed by honorable colleagues tending to decrease the imminent dangers to general health occurring as a consequence of the putrefaction of the interred bodies.

In the first place, allow me to call your attention in a few words to a few details representing, in my opinion, the most natural explanation of the fear, nay, the detestation, in which cemeteries are at present held by the public. The execrable hygienic conditions of the greater portion of our fellow-men who form the lowest classes of society cause many organisms to fall into a state of degeneration long before the last spark of life has left the body. As an example, I need only cite the case of little children affected with intestinal catarrh or with diphtheria, who, since their birth, have breathed night and day the emanations of excrementitious gases, alcoholic exhalations, and tobacco-smoke of adults living in the same hovel. The cadaveric odor of such corpses is far beyond expression, and natural instinct suffices to demonstrate the fact that such cadavers are prodigiously venomous and pestiferous. Corruption and its resulting fetid emanations reach their greatest intensity, however, when, in addition to the wretched hygienic conditions, the different forms of debauch associated with prolonged sleeplessness and unwarranted loss of rest have contributed to undermine the health and accelerate disorganization. To what excesses have drunkards, syphilitics, and tobaccophites not "putrefied" themselves long before death! What rapid progress the process of putrefaction must make immediately after death! What disgusting cadavers!

Again, I want to cite two of the most frequently met with diseases,—phthisis and carcinoma. What nauseating infection do consumptives and the cancerous disseminate, as a rule, around them, especially when the end is near at hand! What progress the putrefaction process must have already made during their miserable life! As is well known, there frequently results in these affections, and almost always in nephritis, in fatty accumula-

tions, in heart-troubles, and adipose degeneration of the latter, in cirrhosis of the liver, etc., a dropsical state, presenting itself early or late in the course of these affections. When, after all medicinal means have failed, and the patience of the physician and the surroundings has given way, recourse is had to scarification of the skin, so as to allow the serum to run off, if it has not already begun to do so spontaneously. It is evident that after death the flow of serum continues, nay, often increases. The bed and bedding, and frequently several boards of the floor, have imbibed a quantity of the fluid, which not only contains different patho- and sapriogenetic germs, but constitutes a potent fertilizer for the micro-organisms which find themselves beforehand in the dust between the cracks of the floor.

What of autopsies? Are hygienic considerations conscientiously observed, or does want of all cleanliness not demonstrate the contrary? Sometimes, in carrying the dead out of the house in which the demise occurred, it happens that the cadaveric humors ooze out through the slits of ill-constructed coffins, soiling the balusters, the halls and stairs, the church floor, etc., and it frequently happens that indifference is pushed to a degree sufficient to allow the places and things soiled by the cadaveric fluid to remain uncleansed. Generally, however, the cleansing process is at once begun, but it in no way differs from the usual every-day procedures, their efficiency depending entirely upon the habits and natural tendencies of the persons intrusted with the job. It stands to reason that the infiltration of cadaveric fluids into the dirt lying between the floor-boards, etc., must form a source of great danger, in a sanitary point of view.

Another state of things may be added to the above, one which repeats itself every day. It is certainly sad that no student of sanitary science has as yet given it serious attention, although it is well worthy of it, the more so since no voice has as yet been raised against it with an energetic appeal for reform. I am alluding to the careless changing of residence, or of furniture, and to the reckless wearing of clothes, etc., having belonged to deceased individuals, and left by them as legacy, etc. How many chances do parents take for their children when, unsuspectingly and without due circumspection, they place their pets in rooms which have probably contained within the last six months the corpse of a case of diphtheria, scarlatina, smallpox, etc.! Again, what risk does an individual not run who occupies the non-disinfected rooms or clothes of a recently deceased tuberculous or carcinomatous patient? How many times have we observed large white swellings over the knee-caps of small children, the result of a splinter introduced under the skin while crawling? This demonstrates that hygiene has as yet not only many problems of the highest importance to solve theoretically, but that police ordinances should cause the hygienic mandates to be practically enforced.

An important indication of the general appreciation of these dangers is, that the partisans of cremation are increasing in number every day, and it is quite likely that the time is not far distant when its practice will be recognized by law. While I do not myself belong to the advocates of incineration, I do not hesitate to admit my acquiescence to this mode of procedure, on the condition that the applicants present a death certificate, signed by three persons, belonging, if possible, to different "beliefs," for instance, an idealist, a realist, and an atheist, each having cared for the patient upon his death-bed. I am positive that this return to pagan customs, which cremation certainly is, will not by any means involve the extinction of Christianity, as desired probably by many proselytes of incineration, and I seriously believe that one can be a passable Christian and believe in this method of treating the dead, which does not possess the least anti-Christian tendency; but, however, I perhaps do not err greatly in supposing that in the future, as now, burial in sacred tombs, such as that of our Saviour, for instance, will constitute the general rule.

In the first place, we must determine what reforms, in the methods of burial now employed, are of prime necessity. I have already alluded to the disgusting state of dissolution into which a large number of sick subjects have arrived before death. In cases in which this preliminary disorganization does not exist, only a very brief period transpires, even in our cold climates, before signs of putrefaction present themselves, the disorganization then progressing rapidly. At all times and in all countries great repugnance, horror, and aversion have existed at the sight of putrefaction. It is, in fact, terrible for loving parents to witness the putrid degeneration of one or more beloved children, or of relatives and sincere friends to behold those they dearly loved undergoing the same fatality! How terrible! This forms one of the principal causes for the daily increasing sympathy in

favor of embalming, which already has assumed sufficient importance to form a majority, which places the cremation clique in the shade. For this I would humbly solicit that an interest in the public mind be awakened in favor of embalming, and that its benefits be extended to and obtainable by everybody, even those deprived of all resources. In fact, I maintain that embalming of the dead should become obligatory with time, provided that a general agreement as to methods of procedure and ends to be attained be reached. Old women's unconfirmed and unverified tales about the burial of living subjects will at the same time be brought to an end.

It is a well-known fact that the process of putrefaction, of which vibrios, bacilli, and micrococci are the foundation, and which are found in quantities innumerable in the intestines of human organisms during life, progresses rapidly during the first, or the first three, months after death, when the simultaneous colliquative softening of the organs causes the bacteria of putrefaction to develop in myriads. The quantity of putrefactive products, liquid and gaseous, formed, which penetrates the ground, and especially the underlying stratum, is much more considerable during that time than later, when the decomposition of the cadaver decreases after the liquids have escaped and the bacteria of putrefaction have been supplanted by mere moulding of the remnants. The putrefactive process is most rapid in the cadavers of the victims of epidemics, without demonstrating in any manner that specific pathogenic schizomycetes, for instance, those of scarlatina, or those of ileo-typhus, are rendered inactive, or destroyed by the bacteria of putrefaction.

Thus have things been conducted to the present day. In my opinion, however, the best means would be to encourage rapid destruction of cadavers by chemical means, reducing at the same time the process of putrefaction, and consequently checking the deleterious influence upon the ground, the water permeating it, and the surrounding atmosphere.

The simplest procedure that I would suggest, for the purpose of arresting putrefaction, would be to inject a saturated solution of common salt, with a little "depurated ferric acid" and boracic acid, into the arteries of cadavers. In cases of death from infectious diseases, however, it would be advisable to inject first a solution of biniodide of mercury or of bichloride of mercury, dissolved in a hot solution of iodide of potassium, this again in alcohol, or a solution of chloride of ammonium or sodium. As is well known in the medical world, mercuric iodide heads the list of disinfectants. According to Miguel, 25 milligr. of biniodide of mercury and 30 milligr. of bichloride of mercury are sufficient to prevent the putrid degeneration of a quart of beef-tea. To obtain the same result, 165 gram. of chloride of sodium must be employed, so that the action of common salt is inferior to that of biniodide of mercury 6600 times. Again, since other minerals, such as sulphuric, nitric, or hydrochloric acids possess powerful energy in preventing the multiplication of schizomycetes, and are sold at very low price, it would be advantageous, and at the same time cost almost nothing, to introduce, by means of a sound through the œsophagus, the trachea, and the rectum, a certain quantity of these acids into the stomach, lungs, and colon. Again, I would recommend that the trunk and the extremities of the cadavers be wrapped with a layer, 5 to 8 millim. thick, of lime packed into long flat bags that can be wrapped like a belt around those parts.

It would be desirable that police ordinances relating to the burial of the dead contain provisions with a view to enforcing the following features: That the bottoms of coffins be made impermeable to water, and be covered with a layer, 5 to 8 mm. thick, of substances possessing absorbent properties, such as dry earth, the crushed acicular leaves of resinous trees, ashes, saw-dust, and charcoal-dust. Just before closing the coffin, the hands and face should be covered with lime.

For the fulfilment of the above measures a new form of educated labor would become necessary,—there must be "embalmers," of both sexes; while to insure the proper carrying out of the project, a special police service, under an inspector, should also be established. The former would be specially instructed in the performance of their duties, and only to exercise them when thoroughly acquainted with the several manipulations. At the occurrence of a death, the police inspector, notified at once by the friends of the deceased, would repair to the house of the latter, accompanied by the embalmer, who should at once carry out his duties, and thus check from the start any danger of infection.

THE HYGIENE OF OLD AGE.

By H. C. Wood, M.D.

WITHIN a few weeks the city of Philadelphia has been called upon to mourn the loss of the man who, although very far from intellectually the greatest within her borders, as a citizen was pre-eminently chief. Dying at the age of eighty or eighty-one years, he is universally spoken of as being gathered like a ripened sheaf; yet, within a week of his burial, he was full of mental and physical vigor, and his death at the time was as unnecessary and avoidable as though he had only reached threescore years. A very notable percentage of the deaths of persons who have been successful in life, and have attained beyond the seventieth year, could be, by proper care, long postponed. Failure in life in a large proportion of cases saps vitality, and the man who carries the load of self-knowledge of such failure lives under a persistent strain, whose effects, though usually not recognized, are none the less irresistible. In order to protract an advanced life it is well to understand not only the dangers that beset such life, but the reason why old age has been attained.

The humorist is greatest when underlying his rollicking is the lesson of a great truth; but perhaps few readers, when they enjoyed the broad fun of the "One-Horse Shay," as portrayed by our inimitable Holmes, have recognized the fact that the man who reaches old age does so largely because he has been constructed upon the principles of the famous vehicle "that ran for a hundred years and a day." Barring accidental deaths from railroad collisions, typhoid fevers, lightning-strokes, and other more or less preventable causes, the man who is so built that he is equally strong in all his parts, lives out his appointed days.

Excessive strength in one part is a veritable source of danger. The athlete perishes because his over-developed muscular system perpetually strains and finally wears out a heart or a lung that was originally constructed for a muscular apparatus of half the power of that which he has artificially built up. The larger proportion of mankind die early on account of some local weakness. It ought to be generally recognized that human age is not to be counted by years, and that in some constitutions the general tissues are older at fifty than they are in other individuals at one hundred. Many of the cases of so-called neurasthenia, or nervous exhaustion, of men and women suddenly or gradually breaking down at forty or fifty, ostensibly from overwork, are really cases of premature old age, and are to be nursed and treated precisely as other individuals would be who had reached to fourscore years. Moreover, a larger proportion of early deaths are the result of some vital organ being originally endowed with a longevity less than that of the rest of the organism. The reason that consumption is so often utterly irremediable is to be found in the fact that in not a few cases the lung has reached its allotted term of days, and must die because its vitality is exhausted. If an eye, or other not vital part, fails from lack of vital power, the man exists; but if a lung dies, he perishes.

The result of these lucubrations is to lead us to this point, namely, that the individual who enjoys fair health at seventy-five years of age has probably been built upon the principle of the "One-Horse Shay," and that he should be treated as a wise man would treat such a venerable instrument of progression. He would certainly keep it off Philadelphia cobble-stones, and allow it only to be bowled along some smooth turnpike, and especially would he avoid all jolts and jars which would throw an unexpected strain upon one part. The principle involved in such case is that which is most vital in the treatment of the old,—protection, and especially protection from strain of any one vital part. An old man exposes himself to inclement weather, and especially to a high wind, which suddenly drives the blood from the surface upon the internal organs, and at the same time by its very force checks the enfeebled movements of respiration, which aid in forcing the blood out from those organs. As a result, the man perishes at once, because he has thrown too great a strain upon a weak heart, or, if able to momentarily resist the strain, dies in a few days of pneumonia, due to the congestion of the lung. I have known the sudden shock of good news to strike the old man down, as fatally as the pole-axe fells the bullock, by causing the blood to rush with renewed force through the brain, and tear its way through the weakened walls of the blood-vessels. Again, the violent emotion of a sudden bad news may overwhelm a heart which, with care, would have sufficed for its duties for many years. The young athlete in the boat-race pulls at his oar until he drops from heart-strain, and, if the heart-strain has not been too severe, recovers himself in a few weeks, because the vital elasticity of the heart-tissues is in high-

est vigor. But the enfeebled and brittle heart-muscle of the old man, strained in some hurried effort to catch a railroad train, or in some equally unreasonable procedure, has no power of recovery, and rests itself only in death. What is true in regard to the healthy ordinary conditions of the old man is more abundantly true in regard to the diseases of the old. Medicines that perturbate—measures that bring relief through violent local actions cannot be borne, and are not to be employed. At the same time, when possible, it is most essential to arrest at once any incipient disorder in the aged. I knew an old doctor, renowned in all lands, who lived ten years beyond the period attained before by any one of his name, largely because, knowing himself thoroughly, every few weeks he arrested in its inception an attack, which, in a few hours, might have gathered fatal force.

I feel some hesitation in attempting to point out in detail the application of the principles which have just been enunciated, lest this paper may fall into the hands of aged persons, and be substituted for a careful consideration of their individual cases by some skilful medical practitioner. Every person, when he advances in years, should go over his whole methods of life and personal habits with some wise counsellor, and should adapt his mode of life to the peculiarities of his individual case. With this warning, it is probably safe to briefly point out some of the more important details in the regulation of the life of old people. The first question is in regard to food. The teeth in old age are, of course, lost, and they should, unless under exceptional circumstances, be replaced by artificial teeth, for the thorough chewing of food is even more necessary in the old than in the young, because in the old the digestive powers are apt to fail. With the best artificial teeth mastication is apt to be imperfectly performed; hence the food of the aged should be soft and readily comminuted, and especially should it be of easy digestion. Very few old people need stimulating diet; very many are injured by an excess of nitrogeneous food. The kidneys, like all other organs, are feeble, and, if meats and other rich foods are used in excess, they greatly increase the strain upon these organs. Milk and milk products, or preparations of breadstuffs cooked with milk, should form a very large proportion of the food of the ordinary aged individual; but individual peculiarities differ so much that personal medical counsel should in all cases be taken, so that the diet may be regulated to the needs of the individual case. Very many old people are hurt by the use of food in excessive quantity; but little exercise can be taken, all growth has ceased, and the bodily furnaces which make heat are able to destroy by very little of food fuel. Some little time since I had occasion to lecture on this subject at the Philadelphia Hospital, and an assertion that I then made that most old people are more comfortable, enjoy better health, and probably live longer for the use of wine, has met with very severe disapprobation at the hands of some of the profession, whose strong sympathy with the temperance movement dominates their judgment. No valid reasons have, however, so far as my judgment goes, been brought forward to lead me to change my opinion. In the overfed American people the habitual use of wine during youthful or middle age and vigorous health is, we think, an injury rather than a good; but when the powers of life are failing, when digestion is weak, and the multitudinous small ills of feebleness perplex and annoy, one or two glasses of generous wine at dinner aid digestion, quiet for the time being much nervous irritation, and in no way do harm. The sum total of ruin wrought by alcohol in the world is appalling, but it is not lessened by our shutting our eyes to the good that wine properly used may achieve. When in the aged there is a distinct failure of vital power, and especially of digestive power, the call for the habitual use of alcoholic liquors is, in my opinion, imperative. The danger of the formation of any evil habits when a man has crossed the line of seventy is so slight, that the most conscientious physician need not hesitate in recommending the daily use of alcoholic beverages to his patient.

It is, perhaps, not universally recognized, that in numerous cases of various character death finally is due, in greater or less measure, to cold and to an absolute failure on the part of the body to keep itself warm. In the old the heat-making functions are exceedingly low, and hence it is that few old people are comfortable in a room whose temperature is less than 80°. It is especially important, therefore, that an abundance of clothes be worn by old people; but the very weight of the clothes oppresses, so that it is important that lightness of material should be combined with warmth. There is no ordinary garment which compares in heat-preserving powers with the buckskin jacket, and, in our climate, every man who passes the seventieth year should furnish himself with such covering. At first the jacket should be only worn when

going out of doors; but in very advanced age it should form a part of the habitual underwear. The jacket should be high up in the neck and long in the sleeves, and should be of such a length as to thoroughly cover the abdomen. If worn as an under-jacket, it should be perforated so as to allow the escape of the vaporous emanations from the body. Whenever there is any tendency to abdominal weakness, in addition to the jacket and the ordinary warm underclothes, an abdominal flannel bandage should be worn. It ought not to be forgotten that the mass of blood of the human body is in the abdominal organs, and that this is especially so when the circulation is sluggish. It is affirmed by authority, that after death all the blood of the body can be put in the relaxed abdominal vessels; hence the importance of maintaining the abdominal warmth, and hence also the good effect in feeble people with pendulous bellies of the bandage, which helps to sustain the relaxed vessels, and thereby maintain the general circulation. The mechanical effects of tight abdominal bandages are well understood by the profession in the treatment of ascites. It is well known that the sudden removal of the fluid by tapping over the abdominal cavity take away so much pressure from the abdominal vessels as to cause them to relax, and draw the blood away from the heart and lungs and brain in sufficient quantity to produce fainting. It is to prevent this that the patient about to be tapped is bound up, and the bandage continually tightened as the water flows off. The importance of the habitual abdominal bandage is, perhaps, no less although not as universally recognized.

ON THE USE OF QUININE IN CHRONIC DYSENTERY.

By C. J. Marsh, M.D., Thrace, Ark.

THE report by Dr. Bevill in the last number of the Gazette of a case of chronic dysentery cured, as he claims, by quinine, leads me to report a case that came under my care a few years ago.

In the spring of 1880, a man, about 35 years of age, applied to me for treatment of a chronic dysentery of four years' standing. He gave the following history of his case:

Four years previous to his coming under my care he had been attacked, while working on a Mississippi River steamer, with acute dysentery of a violent type, for which he had, I presume, the ordinary treatment, and made a partial recovery. He had, however, never at any time been entirely well, as the stools all the time were of a more or less dysenteric character.

When he came to me he was much emaciated, and suffered a great deal of pain both day and night, as the bowels moved from twelve to twenty times during the twenty-four hours, the discharges being of the typical dysenteric character.

On the supposition that there was more or less of a malarial element in the case, I gave him 5 grains of quinine three times a day in capsules.

In connection with the quinine, to relieve pain and tenesmus, and to secure rest to the bowel, and to facilitate the healing of the ulcers of the mucous membrane, I gave him a pill three times a day before meals, composed of subnitrate of bismuth 5 grains, nitrate of silver and morphine each ⅛ grain, with enough extract of gentian to make a mass. I gave him also an occasional laxative dose of castor oil at night. By following out this course of treatment, with proper regulation of diet, he made a perfect recovery in three months.

While it would be absurd to claim that the quinine effected the cure in this case, it seemed to do its full share in bringing about that happy result,—that is, I consider quinine as a valuable adjuvant in the treatment of such cases when caused or complicated by malarial intoxication.

POISONING FROM BELLADONNA OINTMENT.

By Dr. J. Bloomfield, Napoleon, Ohio.

THE following case is of interest, as showing the extreme susceptibility of some persons to the effects of belladonna.

L. D., a strong, healthy girl, 12 years of age, was recently taken with pneumonia. About the time of the crisis I noticed the parotid gland began swelling, and by the second day after the crisis the gland was considerably swollen and painful. At this time the pulse and temperature were normal, and resolution well established.

I directed that belladonna ointment (U. S. P.) be rubbed on the skin over the gland night and morning to relieve the pain. The ointment was applied in the evening (the child sleeping during the night) and again in the morning.

About two hours after the last application I was called in a hurry to see the patient.

I found her pupils largely dilated, face very red, and imagining she saw all kinds of horrible things around her. Her hallucinations were of such a character that considerable force was necessary at times to keep her in bed. Pulse 76, temperature 98° F.

This condition continued till nine o'clock in the evening, when the patient went into a quiet sleep, not awaking till morning.

I visited her the next morning, and found hallucinations had disappeared, the pupils but little dilated, and only slight redness of the cheeks remaining.

The swelling of the gland subsided in a few days, and the patient made a good recovery.

MYCOTIC ENDOCARDITIS.

Dr. Wysskowitsch details the particulars of an experimental inquiry into the nature of ulcerative endocarditis (*Virchow's Archiv*, 103, Heft 2), to which is prefixed an account of the histological examination of twelve cases of endocarditis in the human subject. Four of these cases were chronic valvular thickening with calcification and necrotic areas, surmounted by warty deposits of fibrin; in four others the vegetations were more or less vascularized at their union with proliferated endothelial layers (thrombo-endocarditis); the ninth case appeared to be a chronic condition of the preceding; the tenth and eleventh showed post-mortem œdema after chronic endocarditis, with, in one case, bacteria (undoubtedly saprophytes). Lastly, there was a recent case of ulcerative endocarditis, which yielded abundance of micrococci on the valves, in the spleen, and kidneys; on cultivation the micro-organisms had the characters of staphylococcus pyogenes aureus. The experiments which form the second part of his paper consisted in inflicting on rabbits an injury of the aortic valve by means of an instrument passed down the carotid artery; then injecting into a vein a few hours later cultures of various micro-organisms. It was shown that the operation of piercing the valve was well borne, and not *per se* followed by any pathological consequences; but that the inoculation was often productive of a malignant mycotic endocarditis upon the injured valve, with secondary metastasis, as in human ulcerative endocarditis. These positive results occurred when the inoculation was made with either of the following micro-organisms: Streptococcus pyogenes, staphylococcus pyogenes aureus, and coccus sepsis (Nicolaier); but the injection of micrococcus tetragonus and bacillus pneumoniæ had no such sequel. It was also found that the staphylococcus produced much inflammatory reaction and suppuration, whereas the streptococcus, although causing much more valvular deposit and more numerous infarctions, had no such severe action. The changes in the heart and vessels were not limited to the valves pierced by the stylet: the micrococci growing also on the mitral valve and aortic wall, which happened to be eroded by the passage of the instrument. It is, therefore, suggested that mycotic endocarditis may be of various forms depending upon different varieties of micro-organisms. Other experiments to induce endocarditis after inhalation and subcutaneous injection of streptococci yielded negative results; but it was found that the rabbit can only bear inhalation of very small quantities, and it was doubtful if the micro-organism entered the blood-stream at all. Professor Orth, under whose direction this research was undertaken at Göttingen, comments in another article upon the results obtained; they prove, he thinks, that the term "disposition" is no empty one, the mechanical injury of the tissue laying it open to the attacks of the micrococcus which is deposited in the clots. The experiments show also how slight may be the amount of injury required to so lower the vital resistance of the tissue.—*Lancet*, April 10, 1886.

ANTIPYRIN IN PERNICIOUS FORMS OF MALARIAL FEVER.

Dr. John Hope Potter, writing to the *Lancet* for April 10, 1886, states that he has obtained very satisfactory results in the treatment of severe forms of malarial fever by the administration of large and repeated doses of antipyrin; he says that particularly in cases of a remittent type, which are not amenable to ordinary treatment, whether by quinine, arsenic, or diaphoretics with aconite, the administration of antipyrin has produced an instant cure in cases which for weeks had been quite unaffected by the ordinary remedies. In a few cases where the effects were found to be unsatisfactory, abscess of the liver, phthisis, or other complication subsequently developed. He is of the opinion that in pernicious forms of uncomplicated malarial fever we have in antipyrin a most valuable aid to treatment.

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Leading Articles.

ADMINISTRATION OF THE SALICYLATES.

CLINICAL experience seems to us to have proven that the salicylates are almost as much of a specific in rheumatism as is quinine in intermittent fever. The cases are further parallel in the facts that precisely as we have no knowledge of the nature of the malarial poison, and the way in which it affects the system, so have we no knowledge of the nature of the rheumatic poison and its relation to the system; if, indeed, rheumatism be due to the presence of the poison, and be not after all a neurosis. Further, since the pathologist has failed to give the basis, the therapeutist cannot explain either how quinine acts in malaria, or how the salicylates act in rheumatism. Until our pathological knowledge be more complete, to essay an explanation of the therapeutic facts would be to attempt to build a house in the air without a foundation.

The best method of administering quinine in malarial fever is even yet one concerning which physicians are not agreed, but in our opinion the right method is not to give for a length of time 6, 8, or 10 grains a day of the cinchona alkaloid, but to employ it in overwhelming dose, so as to at once abort the intermittent paroxysm. We are much inclined to believe that the proper use of the salicylates is in the same way, and that many of the failures that occur with it in rheumatism are due to an incorrect method of administration. We have always obtained the best results by giving the remedy for thirty-six hours in doses as large as can be borne, then ceasing medication for one, two, or three days, and again giving a very large dose. Even the Apostle Paul expressed fears lest he himself should at some time forget his own teachings, and most of us occasionally lose sight of our own principles. Such forgetfulness led quite recently to a new lesson concerning the salicylates. A patient had been under our care for six weeks with sciatica, the salicylates of sodium had been exhibited in moderately full doses daily for weeks with only a measure of improvement, then the case was treated with iodide, etc. Finally, the symptoms not yielding, the man was put back upon the salicylate, and was ordered a dessertspoonful of a mixture three times a day containing 30 grains of sodium salts. By mistake of the nurse a tablespoonful was given instead of a dessertspoonful, so that the patient got in the twenty-four hours 3 drachms of the salicylate; the consequence was an immediate arrest of all the symptoms. Those of our readers who have ever camped out in the woods will appreciate the fact that you may tap all day at a half-rotten dry log with an axe without splitting it, but one-tenth of the force thus wasted will disrupt the wood when concentrated into a single tremendous blow.

There is little or no danger from the use even of very large doses of the salicylate, provided that these doses be separated from one another so that no accumulation of the salt can occur in the system. Recent experiments show that, except in enormous amounts, the salicylates are not depressant to the circulation. Indeed, Hugues Oltremare, of Paris, and Danewsky, of Moscow, are in accord in showing that moderate doses in the lower animals produce an increase of the arterial pressure, which, according to the experiments of Danewsky, are chiefly the result of the excitation of the vaso-motor centre, as is shown by the fact that it is prevented by section of the spinal cord,—*i.e.*, by vaso-motor paralysis. Further, in 1884, Maragliano published a long series of sphygmographic and sphygmometrical studies upon men, which showed that the arterial pressure is usually elevated,

and never depressed even by the largest therapeutic dòses of the drug. It is possible that the general feeling of weakness and nervous depression which the drug in full doses undoubtedly causes has been mistaken by clinicians for the more serious cardiac depression. Only in cases of distinctly weak heart is there any reason for fear of using the salicylates in very large doses, provided, as we said before, that care is exercised to prevent any possible accumulation in the system.

There is one very important contraindication to the use of salicylates which we have not seen much dwelt upon by writers, namely, chronic congestion or catarrh of the middle ear. The tinnitus aurium which salicylic acid produces has been proven to be the result of an intense irritative congestion of the middle and internal ear. A notable deafness is always present in persons who are fully under its action, and when the inner portions of the aural apparatus are diseased this deafness is greatly exaggerated. More important than the mere temporary inconvenience and distress which is produced in these cases is the liability of permanently intensifying the existing deafness. The circumstances must be very urgent which would warrant the exhibition of full doses of the salicylates to the victims of chronic aural lesions.

DIRECT ELECTRIZATION OF THE HEART.

THE conditions in which heart failure is a source of danger are so frequent, that any points bearing on the treatment must possess the greatest interest, especially since the fact that heart failure implies as a rule the impossibility or the difficulty of the introduction of drugs into the circulation, therefore their action on the nervous centres, and hence necessitates the direct action of our remedial agents on the heart itself; and here we are reduced either to the problematic action of external stimulants or the direct action of electricity on the heart. Thorough clinical studies of the action of electricity upon the heart are at present a desideratum: the evidence at hand is not sufficient to warrant any positive conclusion, but certainly is enough to stimulate further research, and it lies within the horizon of the possible that in the future direct electrical stimulation of the heart may be a recognized procedure in all cases of severe sudden heart failure such as occur in an anæsthesia. The direction of investigation at present should be toward the determination of the best methods of applying the electricity to the heart and of the best currents to be employed.

Owing to the inaccessible location of the heart within the thorax, it is evident that the direct concentration of the current upon the heart is opposed by very considerable difficulties. This difficulty has been to a certain extent removed by a method suggested by Dr. J. Leonard Corning (*Virginia Medical Monthly*, April, 1886), of directly applying the electrical current through the heart. The means which he employs is as follows: He first sprays or brushes the pharynx with one-eighth per cent. solution of the hydrochlorate of cocaine. When he has satisfied himself by repeated trials that the reflex nausea is abolished sufficiently to admit the introduction of the handle of a spoon as far as the epiglottis, he first introduces an œsophageal electrode well insulated, except about one and one-half inches at the point, passing it down the œsophagus until the non-insulated extremity of the instrument lies behind the heart. This region lies between the seventh and ninth dorsal vertebræ, and the exact distance through which the electrode must be passed may be determined by measuring accurately from the eighth dorsal vertebra to the mouth. This electrode is then connected with one pole of the battery, while the other is connected with a flat electrode, which is placed over that portion of the anterior aspect of the heart not overlapped by lung (a triangle, whose apex is at the fourth left sternal articulation, extending downwards and outwards to the union of the fifth rib with its cartilage, and inwards and downwards to the sixth rib).

It is evident that this method will be much more successful in localizing the electric current on the heart than passing it directly through the body. Dr. Corning says that either the galvanic current or the faradic current may be used. It is evident, however, that there must be the greatest difference in the results of these two currents. For it was found by Ziemssen in his experiments on the direct electrization of the heart, in a woman in which that organ was entirely exposed, that the induced current was incapable of producing any modification of the heart rhythm when the strongest currents were passed through the auriculo-ventricular ganglia, the body of the ventricle or the apex. It would seem, therefore, that the faradic current can never be indicated in cases where electricity is desired as a heart stimulus. On the other hand, Ziemssen found that the constant cur-

rent was able to control with the greatest exactness not only the energy and form of contraction, but also the rhythm and frequency of cardiac pulsation. With sufficiently strong currents each irritation with a constant current is followed by a complete and perfect systole of both ventricles. It is thus seen that any desired frequency above the normal rate may be produced by using a corresponding rate of interruption, each ventricular systole, as determined by Ziemssen, even when produced as rapidly as one hundred and forty per minute, being strong enough to cause a perfect and strong pulse at the same rate of the radial artery. Again, Ziemssen found that a strong constant current passed without interruption through two points on the surface of the ventricle, one being on the left ventricle, two centimetres below the left auriculo-ventricular furrow behind the vertical branch of the coronary artery, the other on the right ventricle in the neighborhood of the phrenic nerve, the rate of pulsation is doubled or trebled, to return again to the normal rates as soon as the current is broken. From these results the hope is held out that by passing the interrupted galvanic current through the ventricles, according to the method of Dr. Corning, a heart which is nearly arrested in opium- or chloroform-poisoning, in suffocation, or in various other pathological conditions, might be restored to activity; and it should be remembered here that there is no advantage in using a strong current, for increasing the strength of the current does not increase the strength of the contraction, and a current which is strong enough just to influence the beat of the heart will be quite as efficacious as an extremely strong current, and will be less liable to produce other disturbances. Of course, the possibility must not be forgotten that the phrenic nerve will probably be included in the action of the current, but this will probably not produce any untoward effect.

Dr. Corning states that he has not yet had an opportunity of employing his method in poisoning or suffocation, but that he has been greatly impressed with the benefit derived from this treatment in cardiac weakness and tremor due to excesses and any conditions characterized by intermittent and irregular action of the heart. In such cases he has obtained the most advantage from the employment of the induced current, while, on the other hand, he states that angina pectoris is undoubtedly benefited by a constant galvanic current.

ON HYDRASTIS CANADENSIS.

IT is gratifying to note the gradual disappearance of the prejudice hithertofore entertained in Europe against many new American remedies. True, there is a justification for such a reserve in face of a drug coming from a strange country with no other credentials than a loud praise from its manufacturing pharmaceutist. But it is different with a remedy which can boast of an exhaustively tested remedial value and a fair clinical record, as in the case of hydrastis canadensis. Some three to four years ago this remedy was in Germany utterly unknown, except with the journalistic and didactic element of the profession. At present we find the drug known, employed, and constantly rising in the estimation of our colleagues abroad. This assertion is based upon personal observations in Germany in 1883 and 1886.

Schatz deserved the credit of having first pleaded for the admission of the American medicament into gynæcological practice, while Fellner, of the famous Franzensbad Springs, first subjected the drug to a rigid physiological examination in the laboratory of Prof. v. Basch in Vienna. It appears that this crucial test turned out entirely in favor of the drug, and, with this official but indispensable sanction, hydrastis canadensis will be regarded and received as an acquisition by our German *confrères*.

As could be expected, the fluid extract was the principal preparation tested. The results and conclusions of Fellner's researches have been published and abstracted in every German journal of note. The *Wiener Medizinische Blätter* of February 25, 1886 (No. 8) devotes an especial article to the subject. Let us now review the outcome of Fellner's experimental investigations.

The physiological action of the drug was found to vary according to the method of its exhibition, viz., injection into the external jugular vein, hypodermic application, and administration *per os*. Fellner formulates his principal conclusions as follows:

1. Large doses (90 to 135 grains) produce a great lowering of the blood-pressure and slowing of the pulse, followed by a rise of the pressure and quickening of the pulse, and an ultimate fall of pressure, with irregularity of the cardiac action and the pulse (bigeminus, trigeminus), arythmia, cardiac failure, and death.

2. Medium doses (15 to 45 grains) cause similar phenomena; the blood-pressure rises,

however, higher in the first stage and falls less deeply at the end of the second stage; the terminal symptoms, such as arythmia, etc., are wanting.

3. Small doses (1 to 5 subdivisions of a Pravaz syringe) increase the general blood-pressure.

4. Subcutaneous injection, enema, and application *per os*, even in large doses, act similarly to small doses injected directly into the veins.

From experiments instituted after section of the splanchnic nerves or of the cervical portion of the spinal cord, after compression of the abdominal aorta, and after section of the depressor nerve, and from experiments made under suspension of respiration simultaneously with strychnine injections, it became evident that hydrastis developed its principal effects in the vaso-motor nerve-centres, thus causing vascular contraction or dilatation. The pneumogastric nerves are also influenced by the drug, as was shown after their section by the absence of the slowing of the pulse, otherwise observable in the first stage.

Finally, the drug influences also the heart directly, or the nerve-centres situated in it, as seen by the mentioned cardiac arythmia.

Summing up the physiological effects of hydrastis, we must conclude that the drug is not only a vaso-motor poison but also a direct heart-poison.

Fellner examined also the influence of hydrastis upon the uterus, and found that after each injection of the drug into the external jugular vein the uterus appeared strongly injected simultaneously with the primary fall of the blood-pressure, and that during the subsequent rise of the pressure the uterine muscle, and often also the round ligament, presented a powerful contraction, and were completely ischæmic. The contraction and ischæmia of the organ continue as long as the high pressure persists. The movements of the uterus were transferred to a kymographion and registered. After each injection of hydrastis the apparatus showed the contractions of both fundus and the horns. The maximal effect was obtained with the first rise and fall of arterial pressure, though contractions, especially in the horns, set in later.

Besides the fluid extract, Fellner examined also two alkaloids of hydrastis and their salts, viz., berberine and the phosphate of berberine, and the muriate of hydrastine. These preparations produced likewise very energetic uterine contraction.

Though with us the high usefulness of golden seal has long been an established fact, the above credentials bestowed upon the remedy after the vigorous examination in the Vienna laboratory will naturally tend to increase our estimation of the drug and the popularity it now enjoys.

In conclusion, we have to mention the favorable results obtained with the fluid extract of hydrastis by Dr. Shiwopiszew, of Moscow, as published in the *Medicinskoje Obosrenje*, No. 14, 1885. This physician describes eight cases of metrorrhagia (in metritis and endometritis), and of excessive menstrual discharges, in which the fluid extract was given in 20-drop doses four times daily with very satisfactory results. In two cases of metrorrhagia caused by fibromata, and a case of a uterine carcinoma, the remedy failed, while in every other case, where the bleeding was the result of inflammatory conditions of the parts, the exhibition of golden seal proved a success.

This author emphasizes also the remarkable beneficence which the drug impressed upon the tone of the digestive apparatus. He noted that under its use the dyspepsia, the usual incumbent of uterine disease, disappeared, and does not hesitate to confer the epithets of a tonic and a digestive upon hydrastis canadensis.

HOPEINE.

IN our April issue we called attention to what seemed to be an attempted fraud in putting on the market, under the name of hopeine, what was practically nothing but morphine, and the view which we then took has since been greatly strengthened by the account of the analyses published in the *Pharmaceutical Journal and Transactions* for April 7, 1886, by Dr. B. J. Paul. He also found that the so-called hopeine was so closely analogous to morphine that, if not identical with it, there was no possibility of distinguishing one from the other in comparative trials. Williamson, the discoverer of this so-called alkaloid, himself acknowledged the similarity of the two bodies after the fact had been proved by other observers, and attempted to explain it by the statement that there was also present in hops, together with this alkaloid hopeine, another alkaloid isomeric with morphine. Now, it would seem from Dr. Paul's results that the hop plant not only contains hopeine and morphine, but also cocaine, for he has found that thirty per cent. of this alkaloid "hopeine" corresponded in

every respect with a good sample of cocaine. It also presented the physiological character of cocaine, producing numbness of the tongue. When boiled with water, it was converted into a fine crystallizable substance,—that is, a product of the decomposition of cocaine in that way; then by boiling for two or three minutes with a small quantity of caustic potash, it was decomposed with the formation of benzoic acid, and, on addition of hydrochloric acid, benzoic acid was separated. This test for cocaine is under certain limitations decidedly characteristic. The general result at which Dr. Paul arrives is, that the greater part of the substance of hopeine is really morphine, and that if it be not morphine obtained from opium, it is so like morphine derived from that source as to be undistinguishable from it. Therefore, if the discoverer's account of it be correct, we must suppose that hops as well as opium contain morphine, although trials made with hops grown in England and other parts of Europe have in common no results showing the presence of morphine. As Dr. Paul puts it, we have to adopt one of two alternatives in this matter,—"Either in the wild hop of America there is a remarkable association of two alkaloids known to occur in two extremely different plants, or we have a case of an article improperly put forward as a substance of natural origin, though really a fictitious mixture." We leave to our readers to decide which of these two alternatives is the more probable. In the discussion which followed the reading of this paper before the Pharmaceutical Society, two of the members stated that, although they had not absolutely proved it, they were confident that hopeine also contained a trace of atropine, while still another, in giving possibly the strongest testimony as to the nature of this substance, stated that he had been informed that day that the office of the company which had brought forward this substance was closed.

ON TUBERCULOSIS OF THE ORAL MUCOUS MEMBRANE.

THOUGH, according to our present views, the tubercular infection may seize upon any organ or part of the system, there are some few localities in which hitherto no tubercular lesions have been found, or, possibly, have not been recognized as such. The crucial test of discovering the tubercle bacillus would, of course, preclude at present any diagnostic error. On the other hand, it would be scarcely justifiable to deny the tubercular character to a neoplasm on the ground that no tubercle bacilli have been found in it, for every microscopist knows how difficult the detection of the bacilli is in the chronic tubercular processes, in which but a few microbes at best are detectable. Still, it is claimed that, with a certain ample experience, this detection is feasible in every case.

In the *Wiener Med. Bl.*, No. 8, 1886, we find a discussion of several cases of tuberculosis of the mucous membrane of the mouth. One of the cases, all which leave no doubt as to the correctness of the diagnosis, is an especially interesting one. A man suffered from tuberculosis of the lungs, and, as usually, succumbed ultimately to this affection. A tubercular ulcer on his gum proved the medium of propagation of the affection from husband to wife. A few years after the man's death the widow noted the appearance of an ulcer on her lips, which proved to be of a tubercular nature. Direct infection through kissing was in this instance the evident source of this ulcer. After all therapeutic interferences (including cauterization with lactic acid) had proven useless, the ulcer was cauterized with the Pacquelin cautery and disappeared.

The following case, observed by Prof. Petersen in Kiel, is likewise interesting. The patient, a man of 65 years of age, presented a very cachectic appearance and obvious symptoms of phthisis. Some years ago the man had at the tip of his tongue an ulcer,—a cancer, according to his own expression,—which was extirpated and never returned. At the time of presentation the man showed on the mucous membrane of his left cheek a rifted ulcer of the size of a five-cent piece, with a hard base and irregular thickened margins. No nodes could be detected, and no pain was experienced in the ulcer, which had existed for about half a year, and grew very slowly. The appearance and origin of the ulcer and the cachexia of the patient spoke in favor of the diagnosis of carcinoma, while the existing phthisis and the previously extirpated ulcer of the tongue awakened the suspicion of tuberculosis. There was no clinical way to establish the correct diagnosis, but the extirpated and hardened ulcer revealed on a microscopic bacteriological examination its true nature, viz., that of tuberculosis.

Syphilis and carcinoma comprise the principal possibilities of diagnostic erring in the

case of oral tuberculosis. In the former case, as Hansemann aptly remarks in a recent issue of *Virchow's Archiv*, it matters little to the patient whether the extirpated growth is of a carcinomatous or of a lupous tubercular nature, while in the latter perverted therapeutics will probably make mischief. On the other hand, a timely recognition of the tubercular nature of the growth, if originating primarily and still localized, may suggest a medication not altogether void of good prospects. Hansemann quotes four cases of oral tuberculosis, all diagnosed properly *intra vitam* by microscopic examination after an explorative operation. This procedure must after all be regarded as the only infallible way to gain the right diagnosis. Age and cachexia are anything but reliable diagnostic guides, for carcinoma may exist without and syphilis with a cachexia, and besides, syphilis is also found at an advanced age.

WHY MR. LAWSON TAIT IS OPPOSED TO VIVISECTION.

A PLAUSIBLE explanation of Mr. Lawson Tait's well-known passionate opposition to vivisection is suggested by Professor F. Winckel in the introductory chapter of his recent excellent text-book on the "Diseases of Women" (*Lehrbuch der Frauenkrankheiten*, Leipzig, 1886).

Professor Winckel raises a voice of warning against laparotomy as a panacea for all the diseases of women. Ovarian tumors and uterine fibroids have ceased to be the only indications for laparotomy. Tubal enlargements, ovarian neuralgia, adhesions of the pelvic viscera, displacements of the uterus, such as retroflexion, prolapse, inversion, have been proposed and accepted as indications for abdominal section. It is possible to go still further, and say that when women suffer from pains in the pelvis, through a considerable period of time, which are not very soon alleviated by ordinary means, the gynæcologists resort at once to laparotomy.

"A sadder proof of this statement cannot be adduced than the list of normal castrations presented by Lawson Tait before the International Medical Congress in London, August, 1881. This is really the same thing as to practise animal experimentation upon the living woman, and, therefore, it is not at all remarkable that Lawson Tait is such an energetic opponent of vivisection."

Reports on Therapeutic Progress.

THE TREATMENT OF NASAL AND NASO-PHARYNGEAL CATARRH.

DR. J. SOLIS-COHEN (*New York Med. Journ.*, April 3, 1886) believes that the two great principles in the treatment of naso-pharyngeal catarrh are to keep the parts clean, so as to let them have a chance to get well by themselves, and to take care of the patient's general health; and he believes that this plan will give quite as satisfactory results as when boring, cutting, snaring, and electric cauterization are practised.

The plan he has long used for getting at concealed parts for the purpose of cleansing them, and for the purpose of making any local applications that may be necessary, is to take a small piece of compressed sponge, cut it very thin, moisten it, and place it between the septum and the turbinated bones. The patient sits awhile with this sponge in position, so that, by compression as it imbibes moisture, it is possible to reduce the swelling of the tissues, and thus get a considerable passage for further manipulation. Through the passage thus gained he then uses compressed laminaria tubes, the same kind as are used for dilating the neck of the uterus. These are employed for the purpose of exercising as equable compression on the parts as possible, on exactly the same principle that one exercises pressure by bandaging. They are first to be softened in water, and then to be flattened from side to side, so that they shall become adapted to the shape of the passages. Of course, the size is to be regulated in accordance with the size of the passage. The tent or tube is then allowed to dry after having been flattened, and of course it becomes much smaller. When it is desired to use the tube, after having made a little start in dilating the passage with the compressed sponge (or, in suitable cases, without using the compressed sponge), the tube is greased well with cosmoline, inserted into the passage with the string outside, so that it cannot get loose, and the patient allowed to wear it for an hour or so, according to circumstances. Every half-hour the patient moves the tube a little, and this testing is continued until there is some difficulty in the removal, and then it is withdrawn entirely. It is necessary for this to be done promptly, because these tubes swell up so behind the compressed parts, if left too long, that there may be a great deal of difficulty in removing

them, and so much unnecessary pain be produced. Therefore, just so soon as there is any difficulty in removing them, they have to be taken out. This manipulation is repeated from day to day, and just as soon as the patient has learned it, as he readily does, he does it daily at home. After the first two or three times this compression goes on a great deal better, and then with the sprays, douches, washes, or what not, the parts are cleansed, and, if necessary, other applications made to the surfaces as may seem proper. In the treatment of naso-pharyngeal catarrh where there is a good deal of secretion, the syringing is done partly through the nose and partly through the mouth. Dr. Cohen thinks usually you can wash those parts as well through the nose as through the mouth. But the great point is the cleansing of the parts from the secretions and keeping them clean, for the same reason that one would keep the teeth clean. It sometimes consumes a great deal of time. He has often, in the first interview with the patient, occupied an hour in getting the parts cleansed. The parts must be examined from time to time anteriorly and posteriorly to make sure they are cleansed. Once thoroughly cleansed, the treatment consists in keeping them clean. He has had patients who have told him their malady was of forty to forty-five years' standing, and who have been relieved and have remained relieved for a number of years. Of course exacerbations take place.

A SIMPLE METHOD OF ARTIFICIAL RESPIRATION.

The desideratum at which we aim in artificial respiration is to obtain a method of as simple a character as possible, so that it may be readily understood by the laity, and at the same time should possess the maximum efficiency. The main indications in artificial respiration are: first, to loosen clothing, braces, etc., so as to allow free movement of the chest and prevent constriction of the neck; second, to bring the trachea, larynx, and pharynx as nearly as is anatomically possible into a straight line with the openings of the mouth and nose; third, to obtain as deep an inspiration as possible by elevating the ribs and depressing the diaphragm; and, fourth, to get a deep expiration. Now, although the accepted modes of restoring respiration have proved very successful in trained hands, yet they are almost unknown to the general public, and all require a certain amount of skill, which cannot always be looked for at the hands of the laity. Mr. John Arthur Francis proposes, in the *British Med. Journ.*, March 20, 1886, a plan which he believes combines all the advantages, without the disadvantages, of the methods generally employed, besides possessing great simplicity. It is as follows: The body, having been laid on the back, and with the clothes loosened and the mouth and nose wiped out, two bystanders should pass a narrow lever of any kind under the body at the level of the waist, and raise it till the tips of the fingers and the toes of the subject alone touch the ground; count fifteen rapidly; then lower the body flat to the ground, and press the elbows to the sides hard; count fifteen again; then raise the body again for the same length of time; and so on, alternately raising and lowering. The head, arms, and legs are to be allowed to dangle down quite freely when the body is raised. A child can easily be manipulated by one person with a hand under each loin. For an adult, the best way is for two persons to grasp each other's right hand under the body, and then raise it. A stout walking-stick or umbrella would be efficacious, where the operators were too weak to lift up the patient with one clasped hand. To join both left and right hands with those of another person would probably form too great a plane for the body to rest on, except in the case of a very tall patient, and prevent the full extension of the spine.

THE OPERATIVE TREATMENT OF FACIAL NEURALGIA.

Dr. George R. Fowler publishes in the *Annals of Surgery*, April, 1886, an elaborate paper on the above subject, from which he draws the following conclusions, as embodying the result of the experience of surgeons up to the present day:

1. Neuralgias of the fifth cranial nerve, of peripheral origin, which have resisted methods of treatment other than operative, may be expected to yield to the operation of neurectomy of the trunk or trunks whose branches are distributed to the painful area. In this class of cases the neurectomy should be carried, if possible, to the point at which the nerve makes its exit from the cranium.

2. Cases of central origin should be first submitted to a limited neurectomy, conjoined with nerve-stretching, in the hope that the process of degeneration thus set up, together with the rest gained by interrupting the cen-

tripetally conducted stimuli, may favorably influence the diseased central organ. In case of relapse this may be repeated, providing the period of rest thereby gained corresponds to the length of time which Waller's investigations show to be usually occupied by the process of degeneration and regeneration. If no relief is gained, a similar operation should be performed upon all of the divisions of the fifth nerve. This failing, a complete neurectomy of each division accessible should be done; and finally, ligature of the common carotid may be tried as a last resort.

3. In cases of doubtful origin, a complete neurectomy followed, in cases which relapse, by ligature of the external and common carotid, in turn, hold out the best prospect of cure.

4. A complete neurectomy of the second division of the fifth necessarily involves the extirpation or destruction of the spheno-palatine ganglion; and to this fact, rather than to any intrinsic tendency of the ganglion itself to keep up the irritation causing the neuralgia, is to be attributed, in all probability, any increasing immunity from relapse claimed to have been obtained in those cases in which Carnochan's operation has been performed.

5. No patient should be denied, other things being equal, the chance which any one, or all these operations in turn may give him of escaping, even for a short time, the intolerable suffering incident to an intractable or otherwise irremediable facial neuralgia.

HELENIN IN DIPHTHERIA.

Dr. Juan Beltran Obiol has communicated to *La Cronica Médica* a paper on the subject of the successful treatment of diphtheria by means of helenin. He refers to a work by Dr. E. Pilatte, published in Paris and entitled "Recherches Expérimentales sur le Bacile de la Tuberculose," in which it is stated that the three substances most destructive to cultivations of bacilli are, in the order of their activity, (1) sulphuretted hydrogen; (2) corrosive sublimate; (3) helenin. The first two of these are of course out of the question for diphtheria. Helenin, therefore, is the only one which can be used for this purpose. Dr. Obiol is very particular about the helenin he employs, for he finds many specimens in the market which are exceedingly impure. When pure, he says, it is perfectly white and flocculent, like sulphate of quinine. It has an aromatic odor and a bitter aromatic taste. It is insoluble in water, and does not communicate to it any opalescence. It is very soluble in alcohol, and even more so in ether, the solutions being clear, colorless, and depositing no sediment. It is also soluble to the extent of two per cent. in oil of sweet almonds. Impure specimens are apt to be granular, heavy, yellowish, only slightly bitter, with a resinous odor, and they sometimes impart opalescence to water, and deposit a precipitate from their solutions in alcohol and ether. Another substance sold as helenin, but which is said to be a derivative of shalin and not to possess the antiseptic properties of helenin, is crystalline, only slightly soluble in ether and alcohol, and not at all in oil of sweet almonds. The pure drug is insured by prescribing "helenin (Baeza)." The author's plan was to apply powdered camphor on the end of the finger to the diphtheritic patches, and then to paint them over with a solution of helenin in oil of sweet almonds. This was done at first every four hours, and quickly produced complete destruction of the false membrane. The drug was also given internally in doses of 1½ grains to children of 6 years of age, care being taken to administer the powder after the application, as the latter sometimes induced vomiting. The author had great success with this method of treatment, but he insists on the necessity of the local applications being made by the medical man himself as far as possible, and not left to the parents. He found that when he commenced the treatment on the first day of the disease, a single day was sufficient to effect a cure; when he commenced on the second day, two or three days were required; when on the third or fourth day, from six to nine days were needed; but when he did not see the patient till the fifth or sixth day the hope of effecting a cure was not very great. In his experience albuminuria did not occur. The only unpleasant action of helenin is its constipating effects, against which it is necessary to guard by giving laxatives.

PHYSIOLOGICAL AND CLINICAL BEHAVIOR OF ANTIPYRIN AND THALLIN.

Our knowledge of the action of the new antipyretics is receiving constant, we may almost say weekly, additions. One of the latest researches on these drugs is by Dr. Anseroff, and is reported in the *Russian Medical Review* for last month. The particular point to which he directed his investigations, which were conducted both in the laboratory and in the wards, was the effects of antipyrin and

thallin on the vaso-motor apparatus both in the normal state and in fever cases. He employed for some of his experiments animals which were sufficiently under control not to require tying-up, which of itself must exert some influence prejudicial to the results. He found that antipyrin caused an increase of blood-pressure and a decrease of the internal temperature, as shown by a thermometer in the rectum; but a considerable rise, sometimes as much as 12° C., in the external temperature, that of the paw being generally taken. This rise of the temperature of the paw, however, did not occur where the limb had been previously paralyzed by division of the sciatic nerve, showing that the antipyrin acted as a stimulant to the vaso-dilator nerves through the vascular centre, the vaso-constrictors of the interior being stimulated so that the tension remained above the normal. Similar results were given by experiments with thallin. With regard to the rise of temperature, which sometimes occurs after the exhibition of considerable doses, Dr. Anseroff suggests that increased loss of heat may induce augmented heat-formation. The rise observed after thallin may be explained by the exhaustion of the apparatus which regulates the loss of heat. Clinical observations on fever patients present an analogous result, viz., a lowering of the internal temperature going on side by side with an increase of the external temperature. Clinically, the following points concerning the two drugs should be borne in mind: 1. With thallin the temperature begins to rise again two hours after the dose. 2. Very frequently a single 4-grain dose of thallin produces a rigor, with a subsequent rise of temperature, sometimes above that which existed before the medicine was taken. 3. With respect to equal doses of the two drugs, thallin causes a more decided reduction of temperature, but is much more likely to produce a rigor with a subsequent rise. Antipyrin behaves, in the author's opinion, like hydro-therapeutic measures in improving the breathing, pulse, general feeling, and appearance of the patients.—*Lancet*, April 3, 1886.

INTUBATION OF THE LARYNX.

The question of operation in croup or laryngeal diphtheria may be said to be yet *sub judice*, although of late years the tide of professional opinion has been setting strongly toward the side of surgical interference. And although authorities are now almost unanimous in advising that tracheotomy be employed at one time or another in membranous croup rather than to let the child die from strangulation, they are by no means at one in counselling an early operation, some maintaining that it should be undertaken immediately upon the appearance of the first sign of stenosis, others averring that it is a desperate measure which is justifiable only when all other means have been tried in vain. And practitioners in general are still very loath to even suggest what they are wont to regard as an heroic measure and one of little practical utility. There is much reason for this. The parents and friends are naturally distressed at the thought of an operation, and, unless they can be assured of its success, will often refuse their assent to its performance. Again, tracheotomy is by no means the simple procedure which some of its enthusiastic advocates, with a greater fund of theory than of practical experience to draw upon, would assume. Tracheotomy performed on the living subject, especially a child, struggling for air, with the larynx rising and falling at each labored respiration, and with the blood pouring from the turgid veins to obscure the delicate field of operation, is one of the most difficult tasks of the surgeon, and, taking into consideration the problematical chances of final success, is one which he assumes with no light heart. It is, therefore, not surprising that the operation has been slow in gaining recognition as a justifiable therapeutical measure, despite the fact that many lives have been undeniably saved by its timely performance. And if any more simple operation could be devised which could be shown to be of at least equal value, it would be welcomed.

We referred recently in these columns to the method of intubation of the larynx first proposed and practised by Dr. Joseph O'Dwyer, of New York. This method does away with the use of cutting instruments, and consists simply in the insertion of a tube of peculiar shape between the vocal cords, thus permitting of the passage of air into the trachea. Dr. O'Dwyer's experiments have been conducted very unostentatiously, and it is only through some very recent publications in the journals of New York and Chicago more particularly, that we have been able to obtain any data upon which to base an estimate of the merits of the procedure. Every new therapeutical measure must be judged by its results, and if on extended trial it cannot prove that it is better than some older and tried remedy, it deserves to, and surely will, fall into oblivion.

The largest number of reported cases of intubation of the larynx for pseudo-membranous laryngitis have been performed by Dr. F. E. Waxham, of Chicago, who has had seventeen cases with eight recoveries; Dr. Dillon Brown reports fifteen cases with four recoveries; Dr. E. F. Ingalls, two cases, both fatal; and Dr. W. P. Northrup, one successful case. In addition to these, Dr. A. B. Strong has employed the method with success in one case of acute catarrhal laryngitis.

These are all the published statistics which the editor of *The Medical Record* (April 24, 1886) has been able to discover in a somewhat hasty search, and, excluding the case of catarrhal laryngitis, we have thirty-five operations with thirteen recoveries, or slightly over thirty-seven per cent., certainly a very favorable showing, when we consider that nearly one-half of the cases were foundlings, and many of them infants.

If now we turn to the results of tracheotomy we find a smaller percentage of recoveries, taking the statistics of a hospital and private practice together, as has been done in the case of intubation. Gay states that of two hundred and six cases of tracheotomy performed for croup in the Boston City Hospital during twenty years there were sixty-five recoveries, about thirty-one per cent., and in his own practice he has had twenty-nine recoveries in eighty-six operations, nearly thirty-four per cent. Of seventy-seven cases operated upon during the year 1885, in the same institution, Lovett states that twenty, or nearly twenty-six per cent., recovered. These results are not very different from those formulated by Agnew in a study of upward of eleven thousand cases, and we may therefore assume the average percentage of recoveries after tracheotomy to be not far from thirty, although Solis-Cohen is disposed to regard the operation in a less favorable light, notwithstanding his own brilliant series of successes.

We thus find that Dr. O'Dwyer's method already compares very favorably with tracheotomy as regards the saving of life, while certainly, to consider it from an æsthetic point of view, it is much to be preferred. It is, however, too soon to pronounce absolutely upon its merits, for the figures are too small and the operators too few to serve as anything more than an encouragement for further trials. It is only after a method has become in a measure popularized, and the number of cases has mounted into the hundreds, that we can form an adequate judgment of its worth. But if intubation of the larynx proves itself to be as valuable as these first essays would lead us to hope, it will be accounted one of the great advances in this age of medical discoveries, and we may only wish that such will be its fate.

IODIDE OF SODIUM VERSUS IODIDE OF POTASSIUM.

The disadvantages attending the employment of the iodide of potassium have long been noticed and commented upon in England; but, probably from the fact that the other iodides have never come into anything like general use here, these disadvantages have been supposed to result from the exhibition of an iodide as such, and therefore likely to follow the administration of iodides of other bases than potassium. The subject has, however, been taken up and studied of late in a more scientific manner, especially abroad, and we are thus enabled to judge on other than empirical grounds the relative advantages of the different iodides.

The object with which any drug is given is, or should be, the relief of certain definite symptoms; but it need scarcely be remarked that no drug, so far as one is enabled to judge, ever corresponds so exactly to any particular morbid condition as to cover that particular pathological area and no more. The effect of the drug overlaps the diseased area, so to speak, and produces, or is apt to produce, a train of symptoms not only unnecessary and undesirable, but oftentimes positively injurious. Now, when iodide of potassium is given in any beyond quite small doses—and large doses have lately been recognized as indispensable to the relief of many cases where no improvement has been effected by the smaller doses—various troublesome consequences are to be noticed, first among which is an extreme depression. We may here recall the well-known fact that potassium, and all salts into the composition of which it enters, exert this depressing influence, lowering the blood-pressure and slowing the heart. So marked is this action on the heart that large doses (1 ounce and upwards) would probably cause dangerous, if not fatal, syncope, were it not for the fact that its emetic action is so far constant in these doses as to obviate the risk of its being absorbed in quantities sufficient to show its power in this direction. The depression, nevertheless, is always present to some extent, and must often be undesirable. Sodium and its salts are comparatively exempt from this ill effect; and, there-

fore, *cæteris paribus*, the use of the sodium iodide is indicated wherever we think proper to employ large doses of an iodide, or where the state of the patient is such as to render further depression unadvisable. In support of the argument that the depression is the effect of the salt, as a potassium compound and not as an iodide, the following experiments may be adduced. When muscular tissue is cut out of the living body and placed in a two or three per cent. solution of a potassium salt, the chloride, for example, the muscular fibres immediately lose their irritability. If this exposure to the potassium salt be not continued for too long a time, immersion in a solution of sodium chloride will restore to the muscle its irritability. Further, if healthy muscular tissue on removal from the living body be immersed in a solution of chloride of sodium, its irritability will be preserved for a much longer period than if it be immersed in pure water (Kühne). The salt-frog, common in the physiological laboratory, is a practical instance of the stimulating action of solutions of sodium chloride upon the living animal tissue.

Second in the list of inconveniences following the employment of iodide of potassium comes the collection of symptoms, catarrh of the conjunctival, naso-pharyngeal, and respiratory mucous membranes, and headache, known as iodism; and this is not uncommonly accompanied by catarrh of the gastro-intestinal mucous membrane, giving rise to epigastric pain and discomfort, dyspepsia, and diarrhœa. An analytical study of the physiological effect of the drug will show that the catarrh of the gastro-intestinal mucous membrane is probably due to the potassium of the salt, which produces the effects alluded to above, on coming into contact with the muscular walls of the stomach during absorption. For this reason, the drug will often be tolerated if the precaution be taken to give it largely diluted with an alkaline mineral water. The coryzal symptoms are probably due to the iodine component of the salt; it is only of minor importance so far as the general health of the patient is concerned, and is variously accounted for by different authorities. The only theory as to its etiology which we shall mention is the one advocated in the latest edition of Nothnagel and Rossbach. According to these authorities, the catarrh of the nasal and respiratory mucous membranes occurs only when either free iodine is used externally together with the iodide of potassium internally, or when the potassium iodide which is used is impure from the presence of some free iodine; in either case, it is the direct irritation of the free iodine, either in the process of excretion or when inhaled as a vapor, which causes the catarrh. If this be so, these effects will be avoided by care being taken to administer a pure potassium or sodium iodide. What has been said as to the cause of the catarrh will hold good for the eruption also; the latter is the external manifestation of an irritation of the integument, just as the former is of irritation of the mucous membranes.

We are ignorant, it is true, of the exact mode of action of the iodides, and of the iodide of potassium in particular; our employment of it is empirical, and we are reduced to the vague designation of "specific" to describe its therapeutical effect. If this be the case in speaking of its action in cases of tertiary syphilis, how much more applicable is it when employed as an "alterative" or "resorbent," where its *modus operandi* can scarcely be guessed at. Be this as it may, whatever effect can be attributed as a "specific" to iodide of potassium can probably with equal justice be credited to the other iodides, and particularly to iodide of sodium; while, as we have endeavored to show, the inconvenience resulting from the employment of an iodide in large doses, is minimized by the substitution of sodium for potassium salts. The same remarks apply with few reservations to the analogous salts of bromine. Such authorities as Nothnagel and Rossbach assert that they have used the sodium iodide almost exclusively for some years past where the drug had to be given for a long time, with results equal to those obtained from the iodide of potassium; and Dr. H. W. Berg, of New York, has used it with similar good results in cases of pregnant women under the influence of syphilis.

To sum up, then, we may claim for sodium iodide that (1) it can be used therapeutically for almost all, certainly the chief, purposes for which potassium iodide is used, and with similar beneficial results; (2) that sodium iodide is more assimilable than the iodide of potassium, both locally to the digestive organs and to the general system; (3) that, as a result, many of the local and general undesirable effects which are produced by the potassium iodide do not follow the use of the sodium iodide. It is to be hoped, therefore, that the sodium iodide will be used by those whose clinical advantages allow an extensive trial of the drug, so that a more extended ex-

perience may confirm that which a limited experience seems to claim for this drug.—*British Med. Journ.*, April 17, 1886.

SYNCOPE AS A CAUSE OF ASPHYXIA NEONATORUM, AND ITS TREATMENT.

Dr. Geo. H. Noble (*Amer. Journ. of Obstetrics*, April, 1886) believes that anæmia of the brain is in nearly all cases the cause of asphyxia neonatorum, and that, therefore, inversion of the child, by which means the blood tends to gravitate to the brain, will in many cases serve to restore children to life which are apparently dead, and in which artificial respiration will ordinarily fail. He therefore recommends the inversion of the child, or, in other words, placing the head lower than the body, and claims for it the following advantages:

1. It enables one to employ any other method in connection with it.

2. It is totally void of violence,—a matter well worthy of consideration. Violent or prolonged artificial respiration works much detriment, and may even fan out the last spark of life.

3. It induces the escape of such fluids as may be in the air-passages,—a matter of prime importance, especially in cases of intra-uterine respiration.

4. Where there is a circulation of blood through the foramen ovale, it substitutes the purer blood of the vena cava ascendens for the venous blood of the vena cava descendens.

5. It gravitates the blood to the lungs, which, there distending the blood-vessels, causes additional stimulus to respiration.

INHALATIONS OF COLD AIR IN ENTERIC FEVER.

In the beginning (*London Med. Record*, March 15, 1886) of his work, Dr. Alexander M. Sokoloff, of the Krasnoselsky Military Hospital, makes an interesting observation (*Voënno-Meditz. Jour.*, February, March, May, June, and July, 1885, and the *St. Petersburg Inaugural Dissertation*, 1884, p. 116) that though typhus patients at this hospital in summer-time are kept in tents, where during August and September the temperature by nights sometimes falls as low as +6° C., and even 0° C.; and though under these circumstances the temperature of the patients in many cases falls from the evening height of 40° C. to the normal in the next morning, he has never seen anything like dangerous collapse or other complications. Starting from this observation, the author justly remarks that dry cold air as a therapeutic agent has not, as yet, attracted the due attention of medical men, in spite of the recommendations made by Hahn, Rosenthal, Senator, Kaczorowski, Langenbeck, and P. Niemeyer. Meanwhile, the statements of the authors named recently found a confirmation in the careful experiments made by Dr. L. R. Traubenberg, in Professor V. A. Manasseïn's clinic. Dr. Traubenberg, however, while admitting the therapeutic value of cold-air baths, at the same time has pointed out that they—as an antipyretic—occupy a lower level comparatively with cold-water baths.

Searching for some means of intensifying the antipyretic action of cold air, Dr. Sokoloff resolved upon undertaking a series of experiments on inhalation,—that is, on introducing this cooling agent directly into the lungs, into "one of the regions of maximal heat-formation." His observations were made in twenty-three cases of enteric fever, five of which were of an abortive type, the remaining eighteen being moderately or very severe (two ended fatally). The patients were made to inhale from a Niemeyer's cold-air inhaler, slightly modified by the author. About five hundred and ten inhalations were made in twenty-three cases, the number of sittings in an individual case varying from six to forty-two; the number of sittings daily from one to three; the duration of a sitting from five to thirty minutes; and the temperature of the air from —2° to —10° R (27.5 to 10.5° F.). From these observations the author draws the following conclusions:

1. Inhalations of cold air produce a greater or less depression of febrile temperature; but, contrary to the author's expectations, their effect is comparatively weaker and more fleeting than that of cold-water baths, and even of cold-air baths. The antipyretic effect of the inhalations varies according to certain conditions. *a. The time of the day.*—The least decrease of the febrile temperature, varying from 0.2° to 0.5° C., is observed when the inhalations are made between noon and 6 P.M. The strongest effect, varying from 0.5° to 1.3° C. (after a single sitting), is observed between 7 P.M. and 10 P.M. *b. The stage of the disease.*—The slightest and shortest effects are observed during the first two weeks of enteric fever, when the average daily decrease (after several sittings) falls short of 1° C., and when the effect of an individual sitting does not

last longer than one and a half to two hours. During the next weeks of the disease the effects are stronger (often 1° C., after a sitting), and last several hours. *c. The duration of the inhalation* is of but slight importance. A sitting of five to ten minutes' duration gives the same decrease of the febrile temperature as a sitting of twenty minutes' duration. The author attempts to explain this rather strange circumstance by fatigue of the lungs, in consequence of which the patient makes accelerated and superficial respiratory movements. At all events, the greatest antipyretic effects are obtained from sittings of twelve to fifteen minutes' duration. *d. The temperature of the air inhaled.*—A temperature of —2° or —3° R. gives almost the same decrease of the febrile temperature as the temperature of —4°, —5°, or —6° R. Relatively stronger effects are obtained from temperatures of —8°, —9°, or —10° R. It would seem natural to expect *à priori* that the antipyretic effect ought to be greater the lower is the temperature of the air inhaled. It proved, however, otherwise. The relatively small effect of lower temperatures is attributed by the author to a comparatively shorter duration of the sittings, the patients being unable to perform prolonged inhalations on account of unbearable toothache occurring in consequence of intense cooling of the mouth and teeth. *e. The mental state of the patient.*—Both depression and excitement (often observed in typhus patients) diminish or even entirely suppress the antipyretic effect of the inhalations.

2. The inhalations produce retardation of respiration (in average, four a minute) and pulse (in average, six beats a minute). At the same time, breathing becomes deeper and the pulse fuller.

3. The inhalations relieve dryness of the mucous membranes and skin.

4. Inhalations of cold air promote resolution of the bronchitis which often complicates enteric fever, and increase the process of ventilation in the lungs.

5. Hence the inhalations lead to an improvement in the patient's general state, sleep, and appetite.

6. Inhalations of cold air act antiphlogistically on the inflamed respiratory tracts, and hence may be employed as a rational therapeutic agent in the treatment of pulmonary inflammation.

7. Systematic inhalations of cold air may prove of use also in chronic bronchitis, asthma, and emphysema.

TREATMENT OF OBSCURE FORMS OF METRORRHAGIA.

At a meeting of the Harveian Society, held April 1, 1886, Dr. Arthur W. Edis read a paper on the treatment of obscure forms of metrorrhagia (*Lancet*, April 10, 1886). He urged the importance of regarding hemorrhage merely as a symptom of some constitutional or local disorder, and not as a disease or entity *per se*. It was a conservative effort of nature in many instances to lessen the arterial tension and prevent the occurrence of more serious internal hemorrhages. A correct diagnosis was the first and most important element of successful treatment, for until the former be known the latter is mere guesswork, and we are as liable to do harm as good in attempting to repress the hemorrhage. The principle of diagnosis by exclusion was one which approved itself to many,—determining, in fact, to what cause the hemorrhage was not due. This could only be done by knowing beforehand what were the most likely causes of severe hemorrhage,—the *possibilities*, so to speak, and then eliminating one after the other until we have left only two or more *probabilities*. Before concentrating attention upon the probable local disorder, the possibility of some complicating constitutional condition, whether cardiac, renal, or hepatic, should always be considered. A clear and concise history of the attack was of great importance in attempting to arrive at a correct diagnosis. Then, again, the color and consistence of the discharge should be noted: whether bright or dark, fluid or clotted, recent or disintegrated. The duration of the flow, interval between the losses, influence upon the general health, and other similar considerations, should not be passed over. Unsuspected miscarriages and incomplete abortions proved a not inconsiderable percentage of these obscure cases. Some of the most difficult cases to diagnosticate occurred at or about the so-called climacteric period. Exploration of the interior of the uterus, either by dilating or excising the cervix, should always be resorted to where no sufficient outside cause for the hemorrhage could be detected. Cases illustrating the difficulty of forming a correct diagnosis were given, and the lines of treatment sketched out.

THE ALKALOIDS OF LOBELIA INFLATA.

The discovery of a second alkaloid in the leaves of lobelia inflata has been an indirect result of an examination of the lobelia nicotianæfolia, a plant growing in the mountain

ranges of the Madras peninsula and Ceylon. One of the Mahratta names of the latter plant is "the tubular poison plant," and an infusion of its leaves is said to be used by the natives as an antispasmodic. It is mentioned in the Indian Pharmacopœia, and Dr. Dymock, in his "Vegetable Materia Medica of India," says that the leaves resemble tobacco, and that the dry herb, when handled, is extremely acrid, the dust irritating the throat and nostrils. As nothing was known concerning the active constituents of this drug, its examination was undertaken in the University of Dorpat by HERR VON ROSEN, who reports (*Thesis*) that he has isolated from lobelia nicotianæfolia two alkaloids,—one a liquid, and corresponding with the reported properties of lobeline from lobelia inflata, and the other a crystalline solid, soluble in chloroform, and difficultly soluble in water, the chemical properties of which are under investigation. Herr von Rosen was therefore induced to make similar experiments on lobelia inflata, and succeeded in separating from that drug also both the liquid and the solid base. The results of some pharmacological experiments made with lobeline hydrochlorate, prepared by Herr von Rosen from the two plants, a commercial sample of lobeline sulphate, and that solid alkaloid from the two plants, showed that they corresponded completely in their action, which resembled apomorphine in its emetic character.—*Pharm. Journ. and Trans.*, April 3, 1886.

THE INFLUENCE OF KAIRIN, THALLIN, HYDROCHINON, RESORCIN, AND ANTIPYRIN ON THE HEART AND BLOOD-VESSELS.

It is through the agency of the blood-vessels and the blood which circulates within them that not only the temperature of the various organs of the body is constantly being equalized, but also that the superabundant heat is thrown off. As is well known, the constant or normal temperature peculiar to animals depends upon the maintenance of a proper balance between the amount of heat generated within the organism and the amount given off to the surrounding medium through the agency of the blood-vessels of the skin, the lungs, etc. Thus, when heat-production is feeble, and the temperature of the surrounding medium low, the cutaneous vessels will be found contracted, and the amount of blood which flows through them in a unit of time will consequently be relatively small. On the other hand, these vessels will be found dilated, and an abundant flow of blood take place through them, when heat-production is increased and the temperature of the surrounding medium is high. Hence, it is evident that any interference with this important function of the circulatory apparatus must necessarily greatly influence the temperature of the body, and anything tending to lower the tone of the blood-vessels, or weaken the heart's action, at once deprives the organism of its most effective means for heat regulation. In the condition known as fever, the temperature peculiar to the animal, or its normal temperature, exists no longer, and in place of it we find a higher one. All the drugs named at the head of this article have been found to reduce the abnormal temperature to a greater or less degree, and yet until now there has been made no detailed series of experiments as to the influence of these remedies on the circulatory apparatus.

It is evident that in the explanation of the action of these drugs, such as antipyretics, this point must first be considered, and conclusions, which must be of the greatest value, may be drawn from the experiments published by DR. H. G. BEYER in the *Amer. Journ. Med. Sci.*, April, 1886. His experiments were made on the frog and terrapin, and he studied the action of the drug on the isolated heart and on the blood-vessels. His results may be formulated about as follows:

I.

1. Kairin produces dilatation of the capillaries and veins, which dilatation much exceeds that of the arterioles, which latter is sometimes preceded, sometimes followed, by an abnormal contraction.

2. It causes a slight acceleration in the current in the arterioles and a slowing of the flow in the small veins.

All the experiments made with kairin on the heart (nine in number) show the great weakening effect it exerts upon the contracting power of the cardiac muscle.

3. Kairin has a destructive influence upon the hæmoglobin of the red blood-globules, and arrests the movements of the white corpuscles. From the results of these experiments, it is quite clear that kairin reduces temperature, both by diminishing heat-production and by increasing heat-radiation. The distinctive influence it exerts on the red blood-corpuscles, however, and the weakening effect upon the heart, render its employment objectionable and dangerous.

II.

1. Thallin, in comparatively small doses, slightly increases the rate of the heart, and considerably increases the work done.

2. Larger doses decrease both the rate and the work done, finally producing diastolic arrest.

3. Atropine retards but is unable to prevent this result.

4. Repeated thallinization of the heart is followed by a peculiar shrinkage of the entire organ, during which it presents the dark color of thallinized blood.

5. The order in which the different parts of the heart are affected is the same for the terrapin as for the frog. To this must be added that the injection of a one per cent. solution of thallin into the substance of the ventricle produces systolic arrest within a few minutes.

6. Thallin, in comparatively small doses, produces dilatation of the arterioles, followed by a contraction of the same.

7. It produces dilatation of the capillaries.

8. It causes a much greater and much more permanent dilatation of the small veins than of either the capillaries or arterioles.

9. Under thallin venous blood and the walls of the veins assume an abnormally dark color.

Thallin, like kairin, reduces temperature by diminishing heat-production and by increasing heat-radiation. As an antipyretic, it is less dangerous, but no less objectionable, than kairin, for while its effect upon the ventricle of the heart is less depressing than that of kairin, its influence upon the blood-corpuscles is sufficient to condemn it.

III.

1. Small doses of hydrochinon in the frog reduce the rate of the heart and the amount of work done.

2. Larger doses quickly paralyze the great veins, sinus, and auricles in the order in which they are named, while the ventricle is affected but slightly.

3. Increasing venous pressure will materially hasten this occurrence.

4. In the terrapin small doses of hydrochinon slightly increase the amount of work done by the heart, but reduce its rate.

5. Larger doses rapidly reduce both rate and work, finally arrest the auricles and sinus in diastole, the ventricle, though much weakened, not being affected to that extent; the ventricles recover quickly and completely, the auricles slowly and imperfectly.

6. Hydrochinon produces dilatation of the arterioles and capillaries, which dilatation is followed by an abnormal contraction.

7. It causes dilatation of the small veins, which dilatation is much more extensive and lasting than that of either the capillaries or arterioles.

8. It quickens the flow in the arterioles and slows it in the veins.

9. It imparts a deep purplish color to the blood flowing in the veins.

10. The effect is the same, whether hydrochinon is injected hypodermically or is used externally. When injected, muscular twitchings come on, which necessarily interfere with the study of the vessels of the tongue.

From all these experiments made with hydrochinon on the heart and blood-vessels of the frog and terrapin, we must arrive at the conclusion that it reduces temperature mainly by increasing heat-radiation, owing to its influence upon the veins, which it largely dilates, and the capillaries and arterioles, which it also dilates, though to a less extent.

IV

1. Resorcin, in small doses, improves the heart's action.

2. In doses of medium size, it paralyzes the sinus and auricles, but has little effect on the ventricle.

2. In very large doses, it at once causes diastolic cardiac arrest, the ventricle recovering sooner or later, the auricles rarely ever.

As is the case with kairin, thallin, and hydrochinon, resorcin reduces the rate of beat of the heart, probably by a stimulating influence on the terminal filaments of the pneumogastric, and dilates the vessels through a similar influence on the ganglia of the vaso-dilators. The tonic effect which it has upon the ventricle is most probably due to its direct action upon the muscular substance of the heart. We have so far no explanation of the difference in the action of these drugs upon the two sides of the heart and vascular system. Nevertheless, the fact remains that all the drugs so far considered possess this property nearly to the same extent. The only difference regarding their influence upon the heart lies in the ventricle. Kairin and thallin, in small doses, exercise but a temporary tonic influence over its contraction. Hydrochinon and resorcin a more permanent one. They all quickly paralyze the auricles and lower the tone of the walls of the veins. The natural consequence is that a much greater quantity of blood will be contained in the veins than in

the arteries, and its passage from the veins back into the ventricle is greatly impeded, owing to the paralyzed condition of the auricles. Collapse therefore ensues; not so much from failure of the action of the ventricle as from the danger of the bleeding the animal to death into its own veins, to use the words of Ludwig.

V.

1. Antipyrin, in very small doses, injected into the lymph-sac of the frog, very slightly contracts the arteries, but dilates the capillaries and veins; in large doses, applied directly to the surface of the tongue, it gives rise to extensive dilatation in the veins and also the capillaries. A one per cent. solution of it applied to the tongue of the frog will, after a short time, cause coagulation in all the superficial blood-vessels.

The manner in which antipyrin reduces temperature is purely by increasing heat-radiation, owing to its extensively dilating the veins and capillaries; but what stamps it as an excellent antipyretic is that, besides dilating the veins, it also has a tonic influence on the heart and slightly increases arterial pressure, or, at any rate, does not cause a diminution of the same. It has, moreover, no injurious influence on the blood or the muscular tissues, and strengthens the auricles.

The objection to the employment of kairin and thallin as antipyretics is from the fact that they cause heart-paralysis, especially affecting the auricles, in doses only slightly larger than are sufficient to produce a lowering of the temperature. But this objection becomes an absolute danger when we take into account the destructive influence upon the blood-corpuscles and tissues generally.

Hydrochinon and resorcin, although not exerting the same weakening and directly paralyzing influence upon the ventricle of the heart which is peculiar to kairin and thallin, both paralyze the venous side of the heart, viz., the auricles, and greatly lower the tone of the walls of the veins. The exact amount of blood, therefore, which is driven into the veins through the increased action of the ventricle is only with great difficulty returned to the ventricle, and here the danger is not so much from failure in the power of the ventricle, as in the case of kairin and thallin, as from the danger of bleeding the animal to death into its own veins. The intense visceral, and especially pulmonary, congestion found on post-mortem by Dujardin-Beaumetz and others, in animals killed by resorcin, seems to confirm this view of the matter.

Antipyrin, though largely dilating the veins, increases the power of contraction of both auricles and ventricle, and has no injurious influence upon the blood nor the muscular tissues, and therefore possesses, indeed, all the good qualities of a perfect antipyretic.

PUNCTURE OF THE NERVE-SHEATH IN SCIATICA.

Sir Joseph Fayrer states in the ***Practitioner***, April, 1886, that some years ago he was asked to see a case of aggravated sciatica of long standing in a man of middle age. The pain was very severe, continuous, liable to increase, and of a paroxysmal character. The posterior muscles of the thigh were somewhat atrophied. The patient himself was wasted and worn by continued suffering and deprivation of rest and sleep. There was no history of rheumatism, gout, syphilis, or other specific cause. A malarial origin, of course, was possible, but there was no satisfactory explanation of the origin of the disease. All the usual methods of treatment had been resorted to, but without relief. On examining the limb carefully he detected, with some feeling of fluctuation, a fulness and tenderness in the course of the sciatic nerve near its origin in the upper part of the limb. He therefore introduced a long, narrow knife into the swelling until it entered the sheath of the sciatic nerve. This gave exit to a certain quantity, a couple of drachms or so, of clear, serous fluid, which was followed by immediate relief of suffering, and rapidly resulted in complete recovery.

He says that he has seen other cases, none so well marked as this one, however, and with much less effusion of fluid, where incision, or rather puncture, has given relief, but he is not aware of others having similar experience, and would therefore call attention to it as of practical interest.

LACTIC ACID AS A DESTROYER OF PATHOGENIC TISSUES.

Since Mosetig-Moorhof's favorable results with this agent, already alluded to in the Gazette, various other observers have made use of it in lupus, superficial epithelioma, papillomatous growths, fungous processes, scrofular ulcerations, laryngeal phthisis, etc. Its advocates claim that it is not a true caustic, but selects diseased and spares healthy tissue. Wherever its employment is practical it is consequently to be preferred to curetting.

In the *Annals of Surgery* for March, 1886, Dr. W. Browning publishes an analysis of the results obtained recently through the employment of this method of treatment.

The acid is a syrupy liquid miscible with water. Though not considered necessary by some, its action may be confined by covering surrounding parts with plasters, collodium, or traumaticin; fats are an impediment. It is applied on linen, felt, or the like, either pure or reduced with water, or mixed as a paste with pure pulverized silicic acid. It may be applied with a brush, but does not then act as rapidly. It is further recommended to bind it on with rubber, paper, or other confining material. It causes considerable pain for a few hours (Bum says one to three), and is usually removed in twenty-four or less.

Joseph (*Deut. Med. Woch.*, 1885, No. 43) cured a leucoplakia buccalis with eighty per cent. diluted lactic acid. Schnitzler reported at the September *Naturforscher-Versammnlung* his experience with it—not very favorable—in tuberculosis of the larynx. Krause, of Berlin, has also used it in this affection, and Jellinek (*Wien. Med. Wochenschrift*, 1885, No. 46), in Schrötter's clinic, has for some months given it more thorough trial. For this purpose he prefers a twenty to eighty per cent. solution. The healthy mucous membrane is but slightly affected, while infiltrated portions are slowly destroyed. The more succulent the infiltration the more vigorous the action; œdematous parts shrink in three or four days, and troubles in deglutition are rapidly relieved. Most favorably affected were small ulcerations, especially on the vocal cords; larger sores were only prevented from further growths. In ulcerous, granular, and hypertrophic pharyngitis he had good results. In nasal troubles simple brushing does not suffice; longer contact is necessary. Jellinek believes that in laryngeal phthisis by daily applications more can be accomplished with this than with any other remedy, and that in its earlier stages it can thus be cured.

Bum (*Wien. Med. Wochenschrift*, 1885, No. 47) has for several months been employing it in fungous,—*i.e.*, tubercular disease of soft parts—skin, subcutaneous tissue, lymphatic glands—in dispensary practice. The unhealthy granulations are reduced to an easily reducible pulp; the walls of the cavity do not bleed. After two or three applications, with intermediary pauses of two days, a permanent dressing of iodoform gauze is used, abundant healthy granulations develop, and a smooth, soft scar results. Lactic acid will attack healthy as well as unhealthy epidermis, but in the subdermal tissue it seeks out fungous nests and destroys them. Bum gives short histories of nineteen cases in patients from 1 to 52 years of age. There were eight males and eleven females; eight ulcers, seven fungous and four fistulous. The average number of acid dressings was three, and the average time of cure twenty-five days, or, deducting one who removed dressings, but nineteen and eight-tenths days. No failures, and, up to date, six weeks to five months later, no relapse.

Finally, Mosetig has returned to the subject again (*Wien. Med. Wochenschrift*, 1885, No. 48), with the demonstration of good results in a large facial epithelioma in a man æt. 55, and an ulcus rodens on the face in a woman æt. 60. In the former, he had made twenty-six applications in a month, and in the latter he had made twenty already. In caries, he finds it excellent, good demarcation being produced, and there being less liability to relapse than after curetting. He has tried injections of the acid, ½ to 1 grm. of a fifty to seventy per cent. solution. Whether relapses may yet occur he, of course, cannot say.

IODIDE OF POTASSIUM IN SPASMODIC ASTHMA.

Dr. J. Ormrod publishes in the *Practitioner* (April 10, 1886) a tabular analysis of the results obtained in thirty-six cases of asthma treated with iodide of potassium. All of the cases displayed, though with varying severity, the cardinal symptoms of the disease,—that is, difficulty of breathing coming on suddenly, usually in the early morning during sleep, and passing off after a time, so as to leave the patient comparatively well, but recurring usually in a regular fashion at regular intervals. The iodide was given alone, or, if in combination, only after the effect of the uncombined drug had been tried, and it proved a failure only in nine cases out of thirty-six,—that is, in twenty-five per cent., while its good effects were not limited to the uncomplicated cases. Five or ten grains three times a day seemed to suit best in most cases, but in some a larger or smaller dose did better. In some, again, an increase of the dose did good for a time, but the effects seemed to wear off. In confirmed cases the drug can hardly be claimed to be curative, though it will in many relieve attacks, which, however, are apt to return when the use of the drug is stopped.

DRAINAGE OF IDIOPATHIC INTRA-CRANIAL ABSCESSES.

The evacuation of traumatic abscesses of the brain has long been a recognized procedure, and has met with a fair measure of success. Recently Mr. Hulke has endeavored to extend this practice to idiopathic abscesses within the cranium. A few months ago a man was admitted into the Middlesex Hospital, under DR. CAYLEY, suffering from coma, which had supervened upon a long-standing purulent discharge from the ear. There were no localizing symptoms. Mr. Hulke trephined the skull in the lower part of the temporal fossa, and by means of a director explored the temporo-sphenoidal lobe, without result. The operation was unattended with ill results, but after the patient's death, a few days later, an abscess was found in the cerebellum. Quite recently a woman was under Dr. Cayley's care with similar history and symptoms, and intracranial suppuration was diagnosed. Mr. Hulke determined to explore the brain. In this instance he made an aperture in the cerebellar fossa of the occipital bone, and through a small incision in the dura mater he passed a director through the cerebellum in all directions, but without striking an abscess. Finding that the symptoms were unrelieved, he subsequently trephined the temporal fossa, and opened an abscess in the temporo-sphenoidal lobe. We believe these cases will be duly reported to one of the medical societies. They mark an important advance in cerebral surgery, but further comments upon them must be deferred until all the facts are before us.—*Lancet*, April 10, 1886.

THE USE OF PAPAÏN IN THE TREATMENT OF DYSPEPSIA.

Papaïn, as appears from the conclusions of Prof. Finkler, has properties which compare advantageously with those of pepsin and pancreatin. As is well known, it is a digestive powder prepared from the juice of *Carica papaia* (melon-tree). 1. It digests equally in acid, alkaline, or neutral fluids, best of all in water. 2. It will dissolve 1000 times its own weight of fresh blood-fibrin. 3. Its action is increased by the presence of pepsin and pancreatin. 4. It acts at the temperature of the body. 5. Meat infused with a solution of papaïn keeps, while undergoing a softening process, much longer than it does without it. From this, it can be inferred that it has an antiseptic as well as a peptonizing action. 6. The product of its action is a peptone, which, from its properties, may be taken to be Meissner's *c* peptone. 7. Papaïn adheres to albumen to such a degree as to prevent its being removed by protracted washing with water. 8. Papaïn, in contrast to pepsin, acts when the resulting peptone-solution is highly concentrated. 9. The addition of antiseptics, such as salicylic or carbolic acids, does not interfere with its action. Hence, in papaïn (Finkler), we have apparently an ideal digestive ferment.

The principal uses for which papaïn has so far been employed is in the digestion and removal of diphtheritic membranes, but DR. GEORGE HERSCHELL recommends this drug in the treatment of various forms of dyspepsia (*Brit. Med. Journ.*, April 3, 1886). Two preparations of this substance are now on the market (those of Christy and Finkler), which, according to Dr. Herschell, possess considerable difference.

In experimenting with them, and comparing the results, it appears at first sight that the former is much more energetic than the latter; but, on further investigation, it will be seen that this apparent virtue really unfits it for internal use, inasmuch as, not content with converting the fibrin into peptone, it again splits it up into bodies soluble in alcohol, and analogous to leucin and tyrosin, which, so far from being of any use in digestion, are absolutely injurious. It is, therefore, evident that the chemical and medicinal results must be kept apart.

If .01 gramme of papaïn (Finkler) be placed with 10 grammes of fresh blood-fibrin, and 50 c.c. of water, at 45° to 50° C. (113° and 122° Fahr.), and put into an oven of the same temperature, the solution takes place in from forty-eight to eighty hours. If, on the other hand, papaïn (Christy) be used instead, in the same experiment, the solution takes place in a much shorter time. But here an important distinction comes in.

If to the result of each experiment be added 10 grammes of fresh blood-fibrin, it will be found that the papaïn (Finkler) will still dissolve this in twenty hours, while that containing the papaïn (Christy) will not dissolve it at all. This proves that the former is a true catalytic ferment, and that the latter is not. An alcoholic extract of the latter will also show the presence of the leucin and tyrosin-like bodies by the usual tests.

Dr. Herschell finds papaïn chiefly valuable in the chronic stomach-catarrhs of children,

in acid dyspepsia, and in cases where severe gastric pain comes on shortly after eating.

1. *Chronic Stomach-Catarrhs of Children.*—Every one is familiar with that state in which we find children at times, and which is very frequently called "biliousness." It is characterized by loss of appetite, languor, pasty complexion, loss of sleep at night, and irritability during the day. There is frequently frontal headache, and the urine is loaded with lithates. If this state continue for any length of time the child emaciates, the unhealthy mucus which sheathes the stomach and intestines preventing the due absorption of the food. Cod-liver oil and compound syrup of the phosphates, which are generally given for this complaint as soon as the child begins to lose flesh, are not assimilated. Sometimes a cough develops, and the child is supposed to have incipient phthisis. Dr. Herschell has found these cases rapidly improve with the following prescription: ℞ Papaïn (Finkler), gr. ½ to gr. i; sacch. lactis, gr. i; sodii bicarb., gr. v. M. To be taken after every meal. It is also advantageous to give a drop or two of tincture of nux vomica immediately before the meal in a little water. The papaïn probably acts by dissolving the mucus, and thus facilitating the absorption of the food.

2. *Acid Dyspepsia.*—This drug is extremely valuable in this form of indigestion. *a.* As it acts equally well in the presence of an alkali, a sufficient quantity of bicarbonate of sodium may be given with it to neutralize the excess of acid in the stomach without impairing its peptonizing power. *b.* Its antiseptic action checks the abnormal fermentation to which much of the accompanying flatulence is due. *c.* An antiseptic can be given with it to increase this action. Dr. Herschell usually orders it in the following manner: ℞ Papaïn (Finkler), gr. ii; sacch. lactis, gr. v. M. To be taken an hour after meals with the following draught: ℞ Sodii bicarb., gr. xv; glycerin. acid. carbolic., ♏viii; spirit. ammon. aromat., ♏xx; aq. ad ℥iss. M. Fiat haustus. It appears that, taken one hour after a meal, a smaller dose of papaïn is required to produce the same result than if taken with the food.

3. *Cases where Severe Gastric Pain coming on shortly after Eating is the Prominent Symptom.*—Dr. Herschell has tried the drug upon twelve cases of this nature. Complete relief was given in ten, one case was partially relieved, and one completely failed to derive any benefit.

Apart from its internal use, papaïn will probably come into extensive use as a peptonizing agent, to prepare ready digested food and enemata in the way in which pancreatin and pepsin are used at present.

THE USES OF POMEGRANATE-ROOT.

At a recent meeting of the Liverpool Medical Institution, Mr. Nicholson (*Med. Press*, March 24, 1886), after giving the history of pomegranate-root as a remedy for tapeworm, related the circumstances of his becoming acquainted in India with its use for other diseases of the bowels. Children are especially liable there to what appears to be tuberculous disease, or, at least, wasting disease, for Mr. Nicholson declined committing himself to an exact classification of the disease. They lose all appetite, become thirsty, peevish, with restless nights; the bowels are deranged, often loose, the belly is tumid, and in many cases the child wastes away and dies. The routine treatment for such a state is generally of no avail. In such cases the greatest benefit was found to result from the decoction of pomegranate-root; not from any anthelmintic properties, but from what may be termed an alterative effect. Several cases had been treated in England, where the disease, though generally unaccompanied by diarrhœa, is one of the causes of those deaths of children which are usually classified as consumption. The remedy had also been found beneficial in some diseases of adults, notably in chronic slight feverishness and debility, attributable possibly to malaria or enlargement of the spleen, though resisting quinine and other usual treatment. Mr. Nicholson had in his first English case been obliged to get pomegranate-root from abroad, but had since used the *elixir granati*, made according to Mr. Siebold's formula by Messrs. Evans & Sons, of Liverpool. It was administered in doses (for young children) of 10 minims, equal to a little more than half an ounce of the P.B. decoction. He had never seen any symptoms of toxic effects from large doses, either of the elixir or of decoction, from quite fresh root in India. The whole root seemed to be equally efficacious with the root-bark, at least for the diseases under consideration.

PROPOSED MODIFICATION OF PIROGOFF'S OPERATION.

At the recent congress of Russian practitioners, Professor Tauber described and demonstrated on the dead subject an operation for removal of the foot, which he believes has

several advantages over Pirogoff's amputation. Standing on the outer side of the limb, he commences an incision at the insertion of the tendo Achillis, and carries it forward just below the external malleolus to the dorsum of the foot, and then vertically downwards on the inner side in front of the heel. When the middle line of the sole is reached, the incision is carried along it backwards and prolonged upwards to the starting-point at the insertion of the tendo Achillis, a flap having thus been cut consisting of the inner side and half the sole of the heel. The joint is then opened, the external ligaments being first divided and then the internal. The astragalus is seized with the bone-forceps and removed, and the anterior part of the foot cut off by Chopart's line, nothing being left but the os calcis, the soft coverings of which on the inner aspect are untouched. The os calcis is seized with the bone-forceps and turned so that the articular surface is towards the operator. The forceps are now taken by an assistant, who holds them tightly; the operator then saws the bone longitudinally in two; the outer half, which is free, is removed, the inner half remaining attached to the flap. The ends of the tibia and fibula are then sawn off just above the malleoli. The cut surfaces of these will be found to correspond almost exactly with that of the os calcis, which is now brought into apposition with them. The advantages claimed for this operation are: 1. The posterior tibial artery itself is untouched, only its branches being divided. 2. The insertion of the tendo Achillis, as well as its bursa, are not injured. 3. The surfaces of the os calcis and of the leg bones correspond very nearly to one another.—*Lancet*, April 3, 1886.

THE ACTIVE PRINCIPLE OF CALUMBA-ROOT.

Calumbin, the non-nitrogeneous crystalline bitter principle occurring in calumba-root, together with berberine, is usually represented as not possessing much physiological activity. Dr. Lauder Brunton says ("Pharmacology," p. 757) it seems to have less action than berberine. But some experiments made with the separated crystalline principle, and reported by M. HOUDÉ, point to it being a somewhat energetic substance, giving rise to vomiting and diarrhœa. In small doses it appeared to augment the secretion of bile, of the glands of the stomach and the intestine. After full doses, the liver appeared to undergo granular fatty degeneration. A dose of 10 centigrammes (1½ gr.) administered to fowls caused death, preceded by digestive disturbance and frequent evacuations. It is thought that if it were not that calumbin is present in calumba in only small amount (0.35 to 0.4 per cent.), it would prove an inconvenient constituent in the administration of the drug.—*Pharmaceutical Journal and Transactions*, April 3, 1886.

VIBURNUM PRUNIFOLIUM IN ABORTION AND MISCARRIAGE.

We have in these columns several times recently drawn attention to the use of black haw in the treatment of threatened abortion or miscarriage, and the statements which we have made have been again confirmed by the experience of MR. J. H. WILSON (*Brit. Med. Journ.*, April 3. 1886). He states that his experience has more and more confirmed him as to its value in such cases, and while it is not always successful, in those cases in which it failed he has been able to account for its doing so. Either the medicine had not been commenced in time, or the ovum had been detached before the viburnum was taken, or there was some reason to suspect a syphilitic taint. In cases of habitual abortion, when he has an opportunity of commencing the viburnum shortly before the anticipated period, and continued it at intervals on the first appearance of threatening symptoms, these patients have invariably gone on to the full time, and done well, without being subjected to restrictions or debarred from active exercise.

In the next class of cases, where there may be reason to suspect even a partial separation of the ovum and a dilated external os, with severe pains and hemorrhage going on for hours, and the patient under the impression that she could not possibly go on to her full time, he has been astonished at its effect, more than three-fourths of these cases doing well.

The most sanguine advocate of viburnum could not expect it to do impossibilities, or to prevent abortion when there is "a gaping os, and a detached ovum presenting." One might as well expect to resuscitate a dead body by galvanism.

Mr. Wilson has never seen ill consequences follow the administration of the medicine, however often the dose has been repeated. In two cases only has it been followed by slight headache. One patient inquired if she had not been taking quinine. The symptoms had been relieved; therefore it was not continued. In the other case, the patient had taken

4 grains of the extract every two hours. The only change was to extend the interval to four hours, and then gradually discontinue it.

Some patients have taken viburnum at intervals during the whole course of their pregnancy. It seems to act as a uterine tonic and sedative, and to relieve the woman of those harassing nervous forebodings which often lead to abortion. The patient, after taking only a few doses, has quite a changed expression. From a drawn, desponding look, her countenance becomes cheerful and happy.

On some of the plantations in America it is the popular belief a woman cannot abort if she be under the influence of black haw, although she may be taking medicine with a criminal intent. Mr. Wilson's experience would go far to confirm that opinion, for he has had patients in whom a succession of abortions have taken place, but, when under the influence of the medicine, they have been able to resist the severest tests,—frights, falls, strains, etc.,—and no ill effects have followed.

With regard to the mode of administering the drug: at first, the liquid extract was ordered, but the smell was so strong and objectionable that the whole house became impregnated; and in two cases, where the stomach could not retain it, the liquid was given as an enema.

He now orders the extract in pills of 4 grains, and finds it a convenient form; as usually made, they soon absorb moisture, and run into a mass, and therefore they should be gelatin-coated.

OBSTRUCTION OF THE BOWELS TREATED BY PARACENTESIS CÆCI.

At the meeting of the Medical Society of Victoria, held February 3, 1886, Dr. J. E. Neild (*Australasian Med. Journ.*, February 15, 1886) read an account of a case of a man, aged 21, who sent for him on September 14 last, complaining of some pain over the cæcum and slight abdominal tenderness. There was no swelling, pulse and temperature were normal, but there had been constipation for three days. The condition of the bowels he connected with a supper of cray-fish and cucumbers. A dose of sulphate and carbonate of magnesia, with sulphuric ether, were given, and on the following day a mixture of castor oil and belladonna, with an external application of belladonna and glycerin over the region of the cæcum, which served considerably to diminish the tenderness. A week later the tenderness over the cæcum had returned, and there was now some tympanitic swelling. The pulse went up to 115, and the temperature rose to 102°. As the bowels had been acting extremely irregularly, Dr. Neild concluded that the large bowel had temporarily lost its contractile power, and a mixture of strychnine, belladonna, and ginger was accordingly directed. The following day there had been no action of the bowels, and there was a doughy swelling extending from the cæcum half-way up the ascending colon, and it clearly contained both fæces and flatus. The pulse was 120 and the temperature 103°, and there was an expression of considerable anxiety in the patient's countenance.

Paracentesis of the cæcum was then performed with an ordinary hypodermic syringe, and the puncture gave exit to a large quantity of exceedingly offensive gas, and the swelling notably subsided. This treatment was quite successful. The abdominal tenderness continued for a few days, but the swelling gradually subsided. The enemata and strychnine and belladonna mixture were steadily persisted in, with occasional doses of castor oil. In a week the patient was well enough to go into the country, and he was seen there three weeks later by Dr. Neild entirely restored to health, with, however, an occasional tendency to constipation. It seems evident in this case that the peristaltic action of the bowels was arrested by the combined mechanical distention of fæces and flatus, and that the puncture of the bowel by relieving pressure averted constrictive inflammatory action.

THE TREATMENT OF BRONCHIECTASIS BY PARACENTESIS.

At the recent meeting of the Royal Medical and Chirurgical Society, Dr. Theodore Williams and Mr. Rickman J. Godlee (*Lancet*, March 27, 1886) communicated a conjoint paper on two cases of bronchiectasis treated by paracentesis, with remarks on the mode of operation. The first case was that of a gentleman, aged 67, who had suffered for two years from chronic bronchitis and emphysema, and six months later had dry pleurisy of the left lung. After the pleurisy the expectoration, before moderate, became profuse and somewhat fetid, the cough more and more harassing, and although Malvern and Bournemouth were visited and a great variety of antiseptic treatment was tried, he obtained no relief. On February 3 he was seen by Dr. Williams, who noted the exist-

ence of a bronchiectasis in the lower lobe of the left lung, the pleura of which was adherent. Tubular sounds were heard over two small areas, neither exceeding a half-crown in circumference, in the eighth interspace. At the request of Dr. Williams, a puncture was made by Mr. Godlee into the first area with an aspirating trocar and canula. Under antiseptic precautions the cavity was opened and a drainage-tube inserted. The result of the operation was that the cough nearly ceased, the expectoration, which was for a few days pneumonic, diminished from one pint a day to a few pellets, and became free from odor, and the patient gained flesh rapidly. At the end of six weeks the discharge ceased, the channel closed, and the wound healed up. Examination of the chest showed complete disappearance of tubular sound from the second area as well as from the first, and further shrinking of the chest-wall. The patient, at the close of nine months after the operation, remained free from cough and expectoration, and was able to walk four miles at a stretch.

The second case was that of a girl, aged 21, who, ever since an attack of typhoid fever, had had troublesome cough and copious expectoration, gradually increasing in quantity, and becoming more and more fetid. She had had hæmoptysis three times, on one occasion amounting to a pint. Examination of the chest showed several bronchiectases, two of which gave rise to very coarse râles over areas about the size of a half-crown in the sixth and seventh interspaces in the axilla; a third area was detected in the eighth space below the scapular angle. At first the patient improved under antiseptic treatment, the expectoration diminishing and becoming less fetid; but after a while these measures ceased to give relief, and an operation was decided on. On June 29, at Dr. Williams's request, Mr. Godlee passed a small exploratory trocar successively into each of the three marked spots, and, obtaining no result, inserted a large-sized aspirating trocar and canula into the seat of the first puncture in the sixth interspace. But an attempt to cut down on the cavity failed. A second operation was performed on July 16, and, after some exploratory punctures, Mr. Godlee, with antiseptic precautions, cut down on and laid bare the eight rib, and excised about an inch of it in order to approach nearer to the bronchi before attempting to open them. The trocar and canula were then passed to a depth of five inches, and Mr. Godlee cut down along the canula and inserted a drainage-tube. The wound gradually healed up, and the patient left the hospital at the beginning of September considerably improved, the cough slight, the sputum having diminished to about three ounces a day, and being only occasionally fetid. The presence of bronchiectases in other parts of the left lung, and possibly also in the right lung, precluded such complete success as was obtained in the first case.

A short account was then given of four other cases of bronchiectasis treated by tapping, in all of which the position of the cavities had been recognized and successfully punctured, but owing to the presence of other bronchial dilatations the success was only partial in these cases. The arguments in favor of the operation are: 1. The tendency to death by septicæmia in some form, unless proper drainage is effected. 2. The reduction in the amount of expectoration, this being due, not only to the removal of the matter, but to the disappearance of the effects of its irritation on the healthy bronchi. 3. The invulnerability of the lung-tissue, it being proved that punctures of this tissue give rise to little or no disturbance to the part or to the system generally. The difficulties of the operation are principally those of diagnosis of the exact positions of the bronchiectases: (1) from the presence of emphysema; (2) from the reverberatory character of their auscultatory sounds, which renders exact localization very difficult. Paracentesis of bronchiectases seems to be indicated under the following circumstances: 1. In cases where antiseptic treatment of all kinds has failed to correct the fetor of expectoration, and to allay the harassing nature of the cough, where death by septic pneumonia seems imminent. 2. Where the evidence goes to prove that the bronchiectases are confined to one lung, are situated in the lower lobe, and have overlying them an adherent pleura. It is not indicated where multiple bronchiectases exist in both lungs, where they are surrounded by emphysema, and where the pleura is non-adherent.

AN ALKALOID IN BETEL-NUT.

E. Bombelon, according to the *London Medical Record* for April 15, 1886, announces that he has succeeded in isolating from the betel-nut a volatile alkaloid, resembling nicotine, to which he has given the name "arekane." He describes it as being left on the evaporation of an ethereal solution as a colorless oil, smelling like weak meat-broth and with a strongly alkaline reaction. It forms

varnish-like salts with tartaric, citric, hydriodic, and salicylic acids, the salicylate having a tobacco-like odor. The hydrochlorate gives with platinic chloride a yellow, with gold chloride a light yellow, with mercuric chloride a white, and with tannin a whitish precipitate. The taste of the free alkaloid as well as of the salts is said to be at first imperceptible, but afterwards becomes acrid. The alkaloid increases the secretion of saliva, slackens the pulse, and has a purgative action.

A CLINICAL STUDY ON THE VALUE OF ANTIPYRIN.

It can no longer be questioned that antipyrin is a truly valuable drug, though its sphere of practical usefulness will probably be limited to the therapeutics of children's diseases. Still, in a recent meeting of the Academy of Medicine of Paris, there arose some—and we admit not unweighty—voices against the admission of this drug into the Pharmacopœia. An outcome of that discussion of French physicians is an exhaustive treatise of DR. LAURE, of the Faculty of Lyons, who desires, by additional clinical proofs, to demonstrate that antipyrin is an acquisition to our remedial resources, and has an indisputable claim to the recognition of every practitioner. We embody in the following abstract of Laure's essay the most interesting and clinically important facts.

In charge of the children's station at the Charité of Lyons, Laure found ample opportunity to test the worth of antipyrin in the various infantile affections. In the *Revue Mensuelle des Maladies de L'Enfance*, of February, 1886, Laure details his experience with antipyrin on fifteen patients, viz. :

Typhoid fever	7
General miliary tuberculosis	2
Acute articular rheumatism	1
Grave scarlet fever, complicated with diphtheria	1
Pneumonia	1
Chronic pulmonary tuberculosis	3

In typhoid fever the immediate effects of the antipyrin medication were surprising. The febrile temperature could be lowered, to use Laure's expression, as it were, at will. The remedy was well borne by the stomach, and in the majority of instances the reduction of the hyperpyrexia coincided with an amelioration of the general state of the patient. Under the influence of the first doses Laure saw the appetite and intelligence return, and several times also that peculiar and immediate improvement observed to follow the exhibition of a cold bath. The first five cases recovered without complication; in the sixth case the drug was ineffective on account of the underlying tubercular and meningeal element which the autopsy revealed later. Nevertheless, Laure declines to consider this complication with the cerebral affection a contraindication for the exhibition of antipyrin, as he has cured a child suffering from spasmodic hemiplegia and a suddenly contracted typhoid fever by the exclusive administration of antipyrin.

In a case of acute articular rheumatism the reduction of temperature, articular swelling, and pain was likewise satisfactory, though the ultimate results of the antipyrin treatment could not be recorded, as the patient escaped from the hospital.

In the case of pneumonia in which antipyrin was also administered, it was difficult to draw the line of demarcation between the results of medication and the natural progress of the affection.

Called as a consulting physician to a case of grave scarlet fever, complicated with nasal, auricular, and ocular diphtheria, and a high elevation of temperature, Laure had the satisfaction to note the successful issue of an almost hopeless case under the antipyretic influences of antipyrin.

In three cases of pulmonary phthisis, Laure could verify the statement of Huchard and Arduin, that antipyrin modifies the fever rapidly, and that the reduction of temperature is followed by a notable subjective improvement with augmentation of appetite and general functional energy.

In two cases of acute general tuberculosis the results of trials with antipyrin were, of course, not very encouraging. The antithermic action of antipyrin was certainly far less marked in these affections than in typhoid fever, though in one case a considerable reduction of temperature could be obtained.

Antipyrin in therapeutic doses appears to be exempt from all danger, provided, however, its employment is watched by the thermometer, and is not extended over too long a period. Nevertheless, the fact is not to be lost sight of that the drug can produce toxic symptoms subsequent either to its accumulation in the system or to an unusually slow elimination. Six grains administered in three successive subcutaneous injections suffice to kill a rabbit of medium size, as has been shown by the experiments of Bouchut and of

Laure. Among the symptoms of intolerance, the profuse sweats occasionally noted deserve a special mention. Still, they depend probably more often upon an idiosyncrasy in the patient than upon the dose and the method of the administration of the drug. Huchard holds that excessive doses create a special liability for the sweats, though in Laure's experience the person who took the smallest quantity of antipyrin showed the greatest sweating.

In four instances Laure observed a morbilliform eruption after the employment of antipyrin, which, however, produced no inconvenience to the patients, excepting in the case of a little girl, in whom an intense and painful pruritus necessitated the stoppage of the remedy.

The vomiting noted by other observers has strangely never been seen by Laure, who, on the contrary, claims that the drug was so well borne by the stomach that the patients insisted upon additional doses. Two of Laure's patients complained of heat in the throat and of a sensation of thirst, symptoms which can, however, with propriety be ascribed to the profuse sweating from which these patients suffered.

The antipyretic effect of antipyrin is, according to Laure's observation, by no means immaterial, for the drug can produce a reduction of temperature amounting to four to five degrees. In one of Laure's little patients the thermometer marked 106° F. at the first visit, and the next morning at the same hour it registered 98° F., the patient having absorbed 1 drachm of antipyrin in doses of 7½ grains, given every three hours. This reduction (amounting to 8° F. for twenty-four hours) is the maximum effect obtained in the experience of Laure.

The action of antipyrin is a pretty rapid one, and within an hour's time a considerable reduction of temperature can frequently be witnessed, though it is difficult to exactly fix a uniform time for its action. The first dose is usually the most effective one, as is also conceded by Huchard. In exceptional cases only we find its antipyretic influence ensuing at a later period.

Antipyrin appears to diminish diuresis and the elimination of urea, as has been especially pointed out by Jacubowitsch (*Jahrbuch für Kinderheilkunde*, Leipzig, 1885, vol. xxiii., No. 4), who, for this reason, absolutely condemns the use of the drug.

The diminution of the frequency of the pulse is wholly unproportionate to the fall of temperature. In one of Laure's patients the pulse was 168 at the time the thermometer marked a fall of 3° F.

Laure cannot agree with Huchard on the point of the hæmostatic virtues of antipyrin, and says that even the ingestion of 1 drachm *pro die* was in two observed instances unable to stop a profuse bleeding from the nose. The alleged antifermentative properties of antipyrin have, in Laure's opinion, been exaggerated, though their existence is undeniable.

The question of contraindications of antipyrin demands a brief discussion. Arduin recently asserted that albuminuria was unfavorably influenced by antipyrin. Laure, on the other hand, could not verify this observation. The good results obtained with antipyrin in a case of cerebral tuberculosis appear to indicate a certain tolerance of the nervous system toward the drug. In fact, Laure claims that save profuse sweats, necessitating the suspension of the drug, there are no veritable contraindications for antipyrin. Remembering, however, the tendency of antipyrin to diminish diuresis and to check tissue-oxidation, it would not be prudent to prescribe the drug nor insist in its employment in subjects presenting a persistent scantiness of urinary secretion.

Laure regards the systematic administration of antipyrin in children's diseases as an eligible substitution of Brand's hydriatic measures, and prescribes the drug usually in doses of 1½ to 7 grains (according to the age of the child), every three hours, whenever the temperature exceeds 102° F. If the urine grows scanty, if profuse sweats, thirst, an eruption, or any other contraindication present itself, the remedy is to be suspended for two to three days.

The great solubility of antipyrin permits of its incorporation with almost every excipient. The syrups of orange-peel and of peppermint are especially suitable vehicles to disguise the taste of the drug.

Our author cites the following memorable declaration of Huchard concerning antipyrin: "Only when the fever constitutes not an element in a disease, but rather a complication of the same, the hour of antipyrin has come."

Laure concludes his valuable essay as follows: "Antipyrin has given us excellent results in typhoid fever, pneumonia, rheumatism, scarlet fever, and the hectic fever of tuberculosis, and proved its superiority over quinine quite manifestly. The rapidity of the thermic movements in the infantile patients renders

the antipyrin medication particularly eligible for the therapeutics of diseases of children."

THE TREATMENT OF GONORRHŒA BY ANTISEPTICS.

Gonorrhœa is by no means a trivial disease, and when due consideration is not paid to its frequent sequelæ it really becomes a serious complaint. However, like many other diseases, if competently treated in its early stage, its seriousness is much modified. We all know that gonorrhœa is caused by a specific virus which excites a specific inflammation of the urethra, together with certain specific inflammations of adjacent parts, and is often followed by a form of blood-poisoning known as gonorrhœal rheumatism. It is evident that if the initial lesion of the specific inflammation of the urethra is sufficiently combated the secondary lesions are hardly likely to occur. Since a micro-organism has been found in the discharge of all cases under twenty-one days' standing, which is by many believed to be a specific cause of the disease, it is evident that agents which will destroy this micro-organism will hold out the greatest hope of being cures for the disease itself. It is evident, therefore, that antiseptics are the drugs which are indicated under this view of the pathology of gonorrhœa, and the report of the treatment of four hundred and thirteen cases by MR. R. H. FIRTH in the *Indian Medical Gazette*, March, 1886, which shows that corrosive sublimate furnished the best results, furnishes confirmatory evidence as to the truth of this view. Mr. Firth's results are appended in tabular form, as follows:

Treatment.	Number of cases treated.	Average number of days of disease.
Zinc sulphate, 5 grs. to ℥i.....	40	24.3
Zinc chloride, ⅓ gr. to ℥i.....	44	27.3
Tannic acid, 5 grs. to ℥i.....	10	29.7
Potassium permanganate, 1 gr. to ℥i	30	19.9
Carbolic acid, 1 part to 40.....	29	23.6
Iodoform, 30 grs. to ℥i.....	11	29
Silver nitrate, ¼ gr. to ℥i.....	14	28.4
Corrosive sublimate, $\frac{1}{16}$ gr. to ℥i...	51	20.1
Corrosive sublimate, warm, $\frac{1}{16}$ gr. to ℥i.....	49	17.5
Chloral, 3 grs. to ℥i.....	7	31.8
Boracic acid, 5 grs. to ℥i.....	25	30.2
Quinine sulphate, 2 grs. to ℥i.....	26	26.3
Sodium salicylate, 5 grs. to ℥i.....	13	31
Lead acetate, 3 grs. to ℥i.....	20	26.1
Bismuth and glycerin, 1 to 10 parts	21	25.5
Warm water.....	23	26.6
Total number of cases.....	413	

From the foregoing it will be observed that Mr. Firth has tried sixteen varieties of injection. Of these the corrosive sublimate, when exhibited warm, gave the best results, followed closely by the potassium permanganate, and then by the cold injections of corrosive sublimate. For the majority of these injections he has employed tragacanth mucilage as the basis, particularly for iodoform, bismuth, chloral, lead and borax, and he thinks the method of injecting the drug in a warm solution to be a point of the highest importance in the treatment of gonorrhœa.

The warm water is very soothing, and Mr. Firth thinks it enables the drug more readily to get at the mucous follicles of the urethra which are the chief seat of disease. He has always been very careful to see that patients understand how to inject properly. In the above cases no one of them received internally copaiba or cubebs. The only medicines given were an initial purge, and the maintenance for ten days on a simple diet. One case under treatment at Manchester with carbolic acid, received marked benefit from hourly administration of 8 drops of antimonial wine. In no other case was medicine given, except it were purgative. Mr. Firth has been recently trying the effect of the ordinary zinc lotion, both sulphate and chloride, used warm. From the few observations he has made, he thinks the results will be nearly as good as those from warm corrosive sublimate. In conclusion he advises medical officers to try the warm corrosive injection, or at least for them to see that the injection they happen to prefer is used *warm*. By so doing he thinks they will cure their patients more effectively and more quickly, too, than heretofore. He advises the keeping gonorrhœal patients in bed for at least eight days; but that is a point which depends upon the degree of local inflammations.

In using the corrosive injections, it is as well after the acute stage is over to increase the strength of sublimate to 1/6 grain to the ounce of water. Such, Mr. Firth says, has been his practice.

CORROSIVE SUBLIMATE IN DIPHTHERIA.

DR. WERNER, medical officer to a circumscribed factory population of about two thousand near Narwa, in the Gulf of Finland, writes in the *St. Petersburger Medicinische Wochenschrift*, describing the satisfactory results he has obtained in diphtheria by treat-

ment with perchloride of mercury internally, combined with ichthyol inunctions. The disease is very frequent and fatal in the locality, he having attended during the last six years ninety cases, the average mortality of which was between sixty and seventy per cent., the majority succumbing from general weakness when the local affection was passing off or after it had quite disappeared. Last year the type was peculiarly severe. In July, August, and September eleven cases occurred, of which no less than nine proved fatal. From the end of September to the present time, however, during which period there have occurred seventeen cases, all of which were treated with perchloride of mercury, and many of which were very severe, there were only two fatal cases, neither of which was seen till a few hours before death.

The author's method of administration is as follows: For young children he dissolves a quarter of a grain of the perchloride in four ounces of water, for children of 6 or 7 half a grain in six ounces of water, and for adults three-quarters of a grain in eight ounces of water. This solution is given to the patients while they are awake every twenty or thirty minutes, in measured doses, so arranged that the quantities made up shall last from twenty to twenty-four hours,—*i.e.*, about half a drachm in the case of young children, and a drachm in that of adults. When a good deal of sleep is obtained, larger doses are given at longer intervals. As a rule only milk is allowed as nourishment. If considerable pyrexia exists, an enema of from 10 to 30 grains of antipyrin, according to the age of the patient, is given, the rectum having been previously cleared out. Externally, ichthyol is diligently rubbed in over the swollen glands three or four times a day, the fingers being wetted with water when dry to permit of the rubbing being continued for some time. For the first two days of this treatment the local affection usually undergoes no improvement, but on the third day it begins to diminish and the general condition becomes better, the appetite increasing and the children regaining their wonted spirits. In no case did the author meet with the extreme debility which was frequent in cases treated by pilocarpine, even when the local affection was decreasing. As the patients approached convalescence the medicine was diminished, so that more than six bottles were never required. Complications never occurred, though three of the patients had previously had scarlatina.—*Lancet*, April 3, 1886.

ON THE OLD AND NEW METHODS OF TREATING CONGENITAL SYPHILIS.

Prof. Monti reviews in the *Archiv für Kinderheilkunde* (vol. vi. No. 1) the advantages and inconveniences of the various therapeutic measures employed in the treatment of congenital syphilis. Our author makes the following divisions:

1. Frictions.
2. Calomel.
3. Corrosive sublimate.
4. Albuminate of mercury.
5. Peptonate of mercury.
6. Formamide of mercury.
7. Protoiodide of mercury.
8. Black oxide of mercury.
9. Tannate of mercury.
10. Iodine salts.

The friction-method is executed by (*a*) the blue ointment, (*b*) the oleate of mercury, (*c*) the mercurial plaster of Bayerdorf-Unna, (*d*) the mercurial soap.

All these preparations have the disadvantage of slightly irritating the delicate skin of children and of producing erythemata, eczemata, etc. Their action is rapid, and never causes salivation, unless the preparations are employed in too large a quantity or for too long a period. Mercury introduced into the system suddenly often determines an extreme anæmia. Cases of sudden death of children resulting from this medication are not rare. For these reasons Prof. Monti never employs mercurial frictions.

Calomel proves usually an efficient and rapid remedy for congenital syphilis, if persisted in for a sufficiently long time. To avoid the anæmia sometimes following upon the calomel treatment Monti uses only small doses of this drug, such as 1½ grains given in four doses *pro die*. After the disappearance of the symptoms of syphilis, it is indispensable to complete the treatment by the administration of the saccharo-iodide of iron in daily doses of 1½ to 4 grains.

The corrosive sublimate is best exhibited in a solution of ⅛ grain in 2 ounces of water, of which 2 to 3 teaspoonfuls are given daily. The sublimate baths influence the syphilitic lesions far more slowly, while the hypodermic injections of sublimate are not so well borne by children as by adults. The hypodermic employment of corrosive sublimate is only justifiable when the intestines are seriously implicated, or the syphilitic lesions imperil the life of the patient directly.

The action of the albuminate of mercury is rapid, but the great pain occasioned by the

hypodermic injections of this preparation contraindicates its employment. Besides, the preparation is very unstable, and consequently little available for general practice.

The peptonate of mercury is more stable than the preceding preparation, but it possesses otherwise no special advantages.

The subcutaneous injections of the formamide of mercury, even when employed in a feeble solution, are too painful to justify their application; besides, they often produce subcutaneous abscesses.

The protoiodide of mercury is an excellent preparation, especially when the osseous tissues are affected; unfortunately, the intestinal mucous membrane is easily irritated by this drug.

The black oxide of mercury is badly borne, and in most cases vomited up.

Monti has used the tannate of mercury in twelve cases with success. The syphilitic lesions disappeared rapidly under its use without any alteration of nutrition. Its dose is ⅓ to 1½ grains.

Iodide of potassium may either be used internally (3 to 6 dessertspoonfuls daily of a solution of 15 grains in 4 ounces of water) or in form of a bath. The saccharo-iodide of iron in form of a powder (1½ to 4 grains daily) is also an eligible preparation. The internal administration of iodide of potassium provokes rapidly meagreness and iodism in children. The saccharate of iron, even if given for a long time, never produces wasting. Monti rarely prescribes for children the syrup of iodide of iron, as it often leads to a more or less violent intestinal catarrh.

THE TREATMENT OF WHOOPING-COUGH WITH CARBURETTED HYDROGEN.

All writers are pretty well agreed that uncomplicated whooping-cough of the sporadic kind is not a formidable complaint, and that its treatment may safely be left to the *vis medicatrix naturæ;* but, on the other hand, it very frequently is complicated, and sometimes seriously so, with convulsions, bronchitis, and pneumonia; while its most formidable sequels are emphysema and chronic affections of the bronchi. Various specifics have at different times been proposed, but all have in turn been abandoned. As is well known, improvement has frequently been obtained by the inhalation of the gases which are developed in the manufacture of illuminating gas, and therefore a course of visits to the gas-works has often served to produce improvement in this disease; but as children frequently contract bronchitis and pneumonia from the exposure to cold from the overheating of the gas-works, this method of treatment can scarcely be looked upon as altogether satisfactory. Dr. W. T. Greene (*Med. Press*, April 7, 1886) believes that he has discovered a substitute for this method of treatment which will produce better results without the inconvenience of the former plan. He was led to this discovery from the fact that in one of his children, who was suffering from this disease in a severe form, after a day or two the symptoms gradually subsided and all trace of the whooping-cough disappeared in about ten days from the commencement of the attack. The explanation which he gives of this cure is that at the head of the child's cot there was a gas-pipe from which a slight escape of gas had been noticed for some time, but the workmen who had been sent for to repair the breach did not come, and so the gas continued in very small quantities to escape, and the little boy got rid of his whooping-cough in a marvellously short time. He repeated this mode of treatment in many other cases, and he claims always to have obtained the like gratifying result. His mode of administration is quite simple. A piece of ordinary gas-tubing is obtained of sufficient length to reach from one of the gas-burners to the floor, on which it may advantageously trail for a foot or two. The gas is then turned on sufficiently, just enough to make its odor perceptible, and the little patient allowed to stand over and inhale it for a few moments, as often as convenient. It will not make him cough, but, on the contrary, afford a grateful sense of relief, and after a few inhalations the more formidable symptoms of the disease will disappear, and will altogether cease to manifest themselves after a few days.

THE MICROBES OF INFECTIOUS OSTEOMYELITIS.

Professor Rattone in the *Archivio per le Scienze Mediche* (vol. ix.) publishes his latest observations on the germs of osteomyelitis, from which we abstract some points of general interest. The staphylococcus pyogenicus is a micrococcus which is found in pus, and cultivated on gelatin liquefies this substance. The streptococcus pyogenicus is another micrococcus, which is also found in the pus of an abscess; it is smaller than the former, and does not fluidify gelatin. According to numerous

observers, the staphylococcus is alone capable of producing infectious osteomyelitis.

Rattone observed in the pus derived from a deeply-seated abscess of a patient suffering from osteomyelitis the exclusive presence of a large number of streptococci. These two microbes not being identical, as can be clearly proven by special tests, especially by cultures in different substances, Rattone is led to regard the staphylococcus as the pathogenetic agent of osteomyelitis.

Dr. Cavagnis, who reported the above facts in *Lo Sperimentale* (November, 1885), adds the following personal observation. He injected into the abdominal cavity of a rabbit a small quantity of blood, dissolved in a solution of chloride of sodium, drawn from the skin of a person affected with osteomyelitis of a grave, infectious form; the rabbit showed no pathological symptoms. The same observer injected into another rabbit a small quantity of pus taken from a tibial abscess of the same patient; the result was equally negative. Both rabbits were killed a fortnight later, but no abdominal lesions were ascertained.

The blood of the patient contained no micrococci, but the pus abstracted from him was crowded with micro-organisms. The question arises, whether the streptococcus, if found exclusively in pus, is not equally capable to propagate the osteomyelitic infection as the staphylococcus. Other experiments will be needed to definitely settle this point.

MYRTOL.

Myrtol has only been, hitherto, studied as a curiosity. Dr. Linarix, in his doctrinal thesis, *De l'Emploi du Myrtol*, gives a complete account of the properties of this substance. Myrtol is both an antiseptic and a disinfecting agent. By its presence, it prevents the decomposition of fermentative and putrescible organic substances; applied to the skin, it does not produce the slightest irritation, if the epithelium be intact. If there be a slight abrasion, a few drops produce a very trifling burning sensation, which quickly goes off. Myrtol stimulates the digestive faculties; all who use it find their appetite increased. In small doses, it acts as a sedative. It is eliminated by the lungs and kidneys, and has also a powerful balsamic action, but is more easily tolerated than most balsams. Its use is not followed by dyspepsia, nor by any of the other troubles attending the use of balsams in general. Dr. Linarix says that myrtol does not produce the same result at all periods of the affections of the respiratory system; in subacute and chronic catarrhal affections, it should be administered when fever has subsided, then the sputa become less abundant, also less purulent. Six capsules daily, each containing fifteen centigrammes of myrtol, form a moderate dose, which should be taken before meals.—*Brit. Med. Journ.*, April 10, 1886.

ON BRONCHO-PNEUMONIA AND ITS MICROBES.

From the *Revue des Maladies de l'Enfance* of February, 1886, we abstract the following interesting views of Dr. Thaon, bearing on the microbic origin of broncho-pneumonia.

Our author leaves out of consideration the tubercular broncho-pneumonia, and simply discusses those forms which follow after an attack of diphtheria, measles, and whooping-cough.

The pneumonic exsudate is crowded by micro-organisms lodged in the pus-cells and the large epithelial cells of the lung-tissue. To obtain satisfactory results in the search for the microbes of pneumonia, the examination is to be made within twenty-four hours after death in the region of the most recent pulmonary lesion, and with the aid of a coloration-method which least alters these (very sensible) microbes.

Thaon found in the lung-tissue after the pneumonic process two varieties of microbes, described previously by Loefery, in diphtheria, viz., zooglœa and bacilli; but, unlike the mentioned German observer, he does not regard the bacilli as the main agents of the pathological process, but holds the zooglœa as the more constant and pathogenetic element.

In the broncho-pneumonia following upon measles and whooping-cough, Thaon discovered microbes presenting themselves as diplococci in chains and also large bacilli.

We miss in the above note any mention of the so-called Friedländer's pneumococci; that is, the microbes first found and described by Dr. Friedländer in pneumonia.

THE USE OF SOME MODERN REMEDIES IN HEART-DISEASE.

Dr. A. Ernest Sansom publishes in the *Lancet* (March 20, 27, and April 3) an elaborate paper on the use of caffeine and con-

vallaria majalis in cases of mitral disease. In nearly all cases of valvular heart-disease, in which there is a failure of compensation, the practitioner first resorts to digitalis, and in mitral incompetence digitalis may be given almost indefinitely, and patients often take it for years with obvious advantage. In mitral stenosis, however, there are many drawbacks to the use of digitalis, which are often manifest even in the early stages of failing compensation. With some patients the drug does not agree, and cannot be made to agree. It may induce faintness and sickness. In children sometimes vomiting is induced, and it cannot be persevered with. In other cases, though these symptoms be not manifested, the drug, instead of increasing the force and decreasing the rate of the pulse, actually increases the feebleness and the rapidity. In some the drug, instead of acting as a diuretic, diminishes the quantity of urine excreted, and in a few instances there may be insomnia, restlessness, and nervous disturbance. These signs of intolerance of digitalis in cases of mitral regurgitation are rare, but they are sufficient to make us cautious. It is a good rule, and one that Dr. Sansom always adopts, never to give an adult a larger dose than 5 minims of the tincture (or its equivalent in infusion or the powdered leaves) three times a day for a longer period than a week without constant observation. Then, if tolerance is assured, the patient may continue to take the drug, or the dose may be continuously increased. It is to be remembered that the effects of digitalis may last longer than the period of its administration.

It is in the later stages, however, that the failure of digitalis is most marked. Its power of increasing the force of the left ventricle seems to be gone. The right cavities continue to dilate, and dropsy may be manifestly increasing, and yet the agent in all combinations with ordinary diuretics fails to increase the flow of urine. Then we are compelled to rely on other agents, and the first of these which should be tried is caffeine. The general effects of caffeine, which the readers of the GAZETTE are familiar with, are to a certain extent identical with those of digitalis. It slows the heart, increases its force of contraction, produces diuresis, has no nauseous effects, and no cumulative action. This drug, therefore, does not require incessant watching, and may be employed in cases of heart-disease where the kidneys are affected. As to its mode of administration, Dr. Sansom generally employs the citrate, which is freely soluble in water. He employs it in from 3-grain to 5-grain doses dissolved in ordinary liquor ammoniæ acetatis. The dose is generally administered three times in the day, but in some cases once only.

Instead of the citrate, the pure caffeine may be employed, dissolved in a solution of benzoate or salicylate of sodium. In these it dissolves freely, and thus a concentrated solution may be made for hypodermic injection. The following formula Dr. Sansom recommends for internal use: Pure caffeine and benzoate of sodium, 1 drachm; distilled water, 6 fluidounces. Half an ounce contains five grains of pure caffeine.

Dr. Sansom reports several cases of mitral regurgitation under his own care of great gravity, in which the resources of ordinary treatment had been exhausted, and in which caffeine citrate was administered. These cases showed in nearly all that the amount of urine passed during a considerable portion of the period when the drug was administered was in excess of the amount passed previously. They also showed that the influence of the drug as a diuretic may be prolonged beyond the time of its actual administration, and thus indicated that the dictum that caffeine is not cumulative in action must be reconsidered. His cases also showed that the pulse became more regular and stronger and reduced in frequency, and he concludes from these cases that caffeine in the treatment of cases of mitral regurgitation, in which failure of compensation has occurred, is a valuable agent,—that is, it is a powerful diuretic, and is therefore very valuable in dropsical cases: that it tends to increase the force of the heart, to calm the respiration, and reduce the temperature, but that it fails in some cases to be of benefit, even though it may manifest this diuretic force.

Dr. Sansom has also employed convallaria in similar cases, employing the extract made from the roots, leaves, flowers, and stem, the dose being 2 to 8 grains; the fluid extract, dose from 2 to 10 minims; and the tincture, dose from 5 to 30 minims. The convallaria appears to possess a cumulative tendency, and consequently only one dose of convallarin, a glucoside and the active principle of convallaria, should be administered each four hours. The experience of various observers in regard to the action of this drug is very contradictory, so much so that it has been suggested that the activity of the plant varies with the locality in which it is grown. If this be so, of course it can be obviated by

the employment of the active principle, convallarin. Dr. Sansom thinks that possibly part of the contradiction has been due to the fact that the conclusions of various observers have been based upon different forms of heart-disease and heart-disturbance, and he therefore has grouped a number of cases of mitral regurgitation in which convallaria was administered in doses of 5 grains of the extract, or 20 minims of the tincture, three times daily. In these cases of mitral regurgitation the influence of convallaria as a diuretic is far inferior to that of caffeine. The rates of the pulse and breathing were, however, reduced, and the force of the heart and tension of the pulse were increased, with an improvement in the regularity of rhythm. He thinks, therefore, that in convallaria we have a drug which may be occasionally used with advantage in cases of mitral regurgitation; that it should be continued for no longer than weekly periods without interruption; that in cases manifesting atrophy it should be accompanied with caffeine, but that for general and systematic administration in mitral regurgitation it will not, except at intervals, usefully supplant digitalis. So much for mitral regurgitation.

Dr. Sansom has employed the same drugs in a number of cases of mitral stenosis, in which, as is well known, digitalis is of much less advantage than in mitral regurgitation; for, in many cases, instead of promoting regularity of the heart's action, it notably increases irregularity. Considering first the use of convallaria majalis in such cases, he has found that in all cases of mitral stenosis convallaria exercised a pronounced diuretic effect, and he thinks it a fair conclusion that convallaria is an important diuretic in cases of mitral stenosis, comparable in its effects with caffeine in mitral regurgitation, and that its effects in this direction are more pronounced in the obstructive than in the regurgitant lesions. As regards the action on the pulse and respiration, he found that in all cases the pulse decreased in rate under the convallaria and increased in tension, while the breathing was improved under the drug in nearly all the cases.

Dr. Sansom's general conclusions are that caffeine is an agent of great value in the treatment of mitral regurgitation, especially in those in which there is much dropsy, and that convallaria, though manifesting no very variable influence in cases of mitral regurgitation, except as an occasional substitute for digitalis, is of considerable therapeutic importance in mitral stenosis.

THE THERAPEUTICS OF THE ACETATE OF COPPER.

Dr. Luton (*Journ. de Méd.*, February, 1886) has been experimenting with the external and internal application of the acetate of copper in scrofula and tuberculosis. For external application, he makes use of an ointment composed of thirty parts of lard and one of the neutral acetate of copper. This ointment has, in his hands, served him very well in the treatment of scrofulous ulcers, tubercles, lupus, fistulæ contracted from cold abscess, glandular abscesses, and opened white tumors. Its application is not painful, and patients bear it well. Under this influence the wound takes on a healthy appearance, and cicatrization rapidly follows. As regards the internal use of this remedy, he thinks that he has obtained favorable results from its employment in a certain number of phthisical patients. He has given to these patients acetate of copper in the dose of $\frac{1}{100}$ of a grain each evening after the last meal, associated with ½ grain of extract of opium to enable it to be tolerated, and to produce some sleep. In some patients he was able to increase the dose up to ¾ of a grain, without the addition of opium and without producing disturbance of the stomach.

RUSSIAN DIURETICS.

The Russians have great faith in diuretics, and therefore many drugs of this class are popular as household remedies. Some of these, such as foxglove, were in use among the peasants long before they were admitted into the category of even extra-pharmacopœial remedies prescribed by professional men. Dr. S. A. Popoff has recently made some researches on the action of certain household diuretics, communicating his results to the recent congress of Russian doctors. Cloud-berries (Rubus chamæmorus) are almost unknown in scientific medicine, though a paper on their diuretic quality was written in 1856 in German by Dr. Trinkovski, who recommended them in hydrocephalus. Dr. Popoff prepared infusions, decoctions, and tinctures, and also an acid which he believes to be the active principle, and found, by experiments on animals, that considerable increase in the urinary secretion was produced by the administration of any of the preparations by the mouth, under the skin, or into the veins. This occurred also when the spinal cord and the splanchnics were divided, and when the animal was under the influence of

curare. There was no alteration in the blood-pressure, and but slight palpitation of the heart. The only cases in which any slowing of the heart occurred were those in which a solution of the acid was introduced directly into the jugular vein. Nikanoroff's experiment of causing defibrinated blood to circulate through the kidney, first alone, and then containing the acid in solution, was tried, and the amount of blood flowing out of the renal veins determined, but no positive results were thus obtained. The author has no doubt that the cloud-berry acts by directly stimulating the renal tissue without acting on the heart or circulatory system. It has thus, he says, an effect similar to that of antihydropin (tincture of black-beetles), which is well known in Russia, and prescribed frequently, but this latter has the more powerful action of the two.—*Lancet*, March 6, 1886.

EMPLOYMENT OF TIN IN TREATMENT.

The metal tin, though long known, for it was used in the manufacture of bronze, has not entered to any large extent into the pharmacopœias of this, or, so far as we know, into those of any other country. The word "bedil," which is translated "tin" in the Old Testament, "stannum" in Latin, and κασσίτερος in Greek, is not certainly to be identified with that metal, and, according to Roscoe and Schorlemmer, it is doubtful whether the metal which the Phœnicians are said to have brought from the Cassiterides, whose exact locality was unknown to Herodotus, was really tin. It is certain, however, that the metal was known to Pliny, that after Cæsar's conquest it was obtained from the Cornish mines, and that Diodorus Siculus describes its conveyance to a small island named Iktis, the topographical features of which, as described by him, correspond accurately with those of St. Michael's Mount in Cornwall.

Most authors hold with Orfila that tin has no toxic properties, since it is but slightly attacked by a solution of hydrochloric acid of the strength in which this acid exists in the gastric juice, and hence can only be absorbed in small quantity. According to DR. PATENKO, of St. Petersburg, who has lately devoted himself to the study of the toxic effects of tin, it has been administered in England in the metallic state, in accordance with instructions given by Dr. Alston, who published some lectures on materia medica in 1770. These instructions are that the patient should take a purgative of senna and manna on a Thursday before a new moon; on the following day an ounce of metallic tin is administered in four ounces of syrup; on Saturday half an ounce more tin is administered in two ounces of syrup, and the same quantity on Sunday; on Monday another purge of senna and manna is given. The success of the remedy, if it ever prove successful, has been attributed by some to the presence of arsenic, which is always present in ordinary tin; whilst MM. Cahours and Solyet consider that an active compound, distannethyl, may be formed in the intestine and become the active agent. Other experiments have shown that the injection of the protochloride of tin into the jugular vein of a dog, in doses not exceeding 5 grains dissolved in ten parts of distilled water, causes death with tetanic symptoms in from one to fifteen minutes, or, if ingested, vomiting, debility, and death. On post-mortem examination the gastric mucous membrane, and even that of the duodenum and jejunum, exhibited thickening and ulceration.

M. Patenko's researches, pursued in Professor Vulpian's laboratory, were confined to the metal itself and to the bichloride. He commenced by giving to two dogs 3 grains of chemically pure tin in powder once daily with the food, and continued its administration for six weeks. No indications of any injurious effects were observed; on the contrary, the animals preserved excellent appetites, and were lively and gained in weight. It was incidentally shown at the necropsy of one of the dogs that the metal had not caused the expulsion of numerous ascarides with which it was infested, nor of a tænia serrata. The urine contained no tin, nor was any found in the brain, liver, spleen, or kidneys. The powder was present in the fæces. It did not, therefore, appear to be absorbed.

The administration of the bichloride of tin gave different results. The animals experimented upon were frogs, guinea-pigs, and dogs, and it was injected subcutaneously, thrown into the peritoneal cavity, and introduced into the stomach. When subcutaneously injected it caused, in small and diluted doses, local anæsthesia, which augmented and extended when larger quantities were employed. Strong solutions caused gangrene, which penetrated deeply, destroying not only the whole thickness of the skin, but subjacent organs, such as the liver and stomach. Injections made into the peritoneal cavity exhibited its caustic properties, but no special peculiarities. Injected into the veins, in doses not

exceeding three-fourths of a grain, death rapidly followed, but the immediate cause of death was not apparent, and has not been ascertained, though it was probably due to the action of the agent on the central nervous system and upon the muscles. The action on the stomach was not marked; even when given in rather large quantities for some time with the food it only caused indigestion. On the whole, therefore, the observations of Dr. Patenko confirm those of previous experimenters, and show that the metal has no poisonous action, but that the bichloride acts essentially on the central nervous system and the muscles.

ANTIPYRIN IN OPHTHALMIC PRACTICE.

Some observations by Khomyarkoff and L'voff, tending to show the superiority of antipyrin over salicylate of sodium in articular rheumatism and migraine, having induced a Russian ophthalmic surgeon, Dr. T. N. Katsauroff, to try it in cases of ciliary neuralgia and headache accompanying various eye-diseases, he has published the results of this method of treatment in the *Vrach.* The patients comprised seventeen males and ten females, their ages varying from seventeen to seventy-five. Apart from the eye-affection, all but three were free from disease. The antipyrin was always given in doses of a gramme (15 grains), and in every case appeared to be of distinct benefit in relieving the pain, a single dose being sufficient in fourteen cases, while in thirteen cases this had to be repeated, in two of them only (optic neuritis and scleritis) a third dose being found requisite. The author mentions that in nine cases where operations for cataract had been performed, and the enforced subsequent dorsal position proved so irksome as to induce headache, the antipyrin seemed particularly valuable, though two of them were complicated by iritis. The action of the drug in these cases was rapid, an improvement generally taking place in half an hour, and the pain being completely relieved in an hour. More or less satisfactory results were obtained in ciliary and cephalic pain accompanying different forms of keratitis, of which there were four cases; in corneal ulcers, of which there were three cases; and in glaucoma, of which there were ten cases. The drug seemed, however, to have less effect on a case of double neuritis, on two of atrophy of the optic nerve, and on one of scleritis. As observed by Khomyarkoff and L'voff, antipyrin proved very valuable in Dr. Katsauroff's hands in migraine, his case being of traumatic origin, a foreign body having penetrated the soft structures of the orbit. Previously to using antipyrin as described, Dr. Katsauroff had been in the habit of employing salicylate of sodium in cases of headache accompanying eye-diseases, but he found that it was often necessary to give it in such large doses as to cause singing in the ears, whereas no unpleasant effects were produced by antipyrin in any of his cases.—*Lancet*, April 10, 1886.

DOUBLE PNEUMONIA TREATED BY PILOCARPINE.

Dr. H. Molière and his assistant M. Fochier publish in the *Journ. de Médecine*, February, 1886, a note relative to the good effects of pilocarpine in a case of double pneumonia. The case was that of a man greatly weakened by dysentery and albuminuria, who was attacked by double pneumonia, under which disease his intestinal troubles became greatly increased. The state of the patient appeared desperate, when an injection of $\frac{1.5}{100}$ of a grain of pilocarpine was given. As the result of this, the number of respirations fell from 48 to 24, and the dyspnœa was greatly relieved. Four hours after another injection was given, which was again repeated on the next morning. After each of these profuse sweating and salivation came on, while at the same time there was the greatest relief in the dyspnœa. The patient was carried on to defervescence, and was soon cured. Molière adds, that he employed pilocarpine in this case on account of the analogy which he had observed in other instances. Thus, in an old man, who was attacked by uræmia, in its form of dyspnœa and delirium, and who appeared on the point of death, an injection of $\frac{1.5}{100}$ of a grain of pilocarpine caused almost immediately a disappearance of all the symptoms, which, however, again returned in the evening to be again relieved by a second injection. So, also, in a young woman in the comatose form of uræmia, and in whom the renal lesion was secondary to an organic affection of the heart, the pilocarpine immediately arrested the coma, and so permitted the possibility of acting directly on the heart and regulation of the circulation. But in this latter case it is certain that, in consequence of the diseased condition of the renal epithelium and the pulmonary congestion, the

purification of the blood was almost entirely prevented, so that uræmia was combined to a certain extent with asphyxia; and although the profuse sweating and salivation produced by the pilocarpine, by reducing the congestion of the lungs, permitted the removal of the asphyxia, and also to a certain extent the uræmia, the sweating could only temporarily relieve this latter condition but could not cure it.

THE PHYSIOLOGICAL ACTION OF ANTIPYRIN AND KAIRIN.

In the *Meditzinskoie Obozrenie*, Fasc. xii., 1885, p. 1203, DR. S. J. PAVLINOFF (*London Med. Record*, March 15, 1886), of Moscow, describes the results of his experiments which have been carried out, under Professor L. Z. Morokhovetz's guidance, in order to compare chemical and physiological properties of antipyrin with those of kairin.

Chemical Properties.—The preparation of antipyrin was obtained from Ferrein, and represented an amorphous yellowish powder of pretty strong bitter taste, with aromatic flavor. It was soluble in water and ether; the solutions were neutral. Kairin belongs to light oxidizable substances; its solutions, kept in contact with the air, within twelve hours become of a ruby color, and in a few days rich dark cherry-red. On the other hand, solutions of antipyrin remain unchanged (that is, either colorless or yellowish) for a month, or even longer. Being treated by nitric acid, kairin solutions turn to dark cherry-red, and, on being subsequently diluted, they gradually become yellow, the latter coloration occurring still even when only 0.001 per cent. of the drug is present. Antipyrin gives no reaction with the acid. But both kairin and antipyrin solutions assume a claret-red color on being treated by perchloride of iron (Fe_2Cl_6).

Physiological Action.—A. *Blood.*—As Morokhovetz showed, when mixed with an equal volume of a 0.001 per cent. solution of kairin, the blood assumes a claret-red color, and gives the methæmoglobin bands on the spectroscopic examination. The red blood-corpuscles take a cup-like form and brownish color. But antipyrin remains entirely inactive, even when a one per cent. solution is employed. The same difference between the two substances is observed, also, when intravenous injections of their solutions in dogs are undertaken. B. *Blood-pressure.*—Antipyrin induces an increase of the arterial tension, while the latter is rapidly and very considerably lowered by kairin (after a fleeting initial rise). C. *Pulse.*—Under antipyrin, the pulse becomes somewhat retarded, but its rhythm remains regular; while under kairin it quickens and assumes a filiform character. Some experiments seem to point out that kairin affects the cardiac muscle, the cardiac nerve-apparatus remaining intact. On the contrary, antipyrin appears to act on the latter, and to leave intact the former. D. *Respiration.*—Antipyrin produces a very considerable quickening of the respiration, the type of which, however, remains uniform all through. On the other hand, kairin brings about interrupted or irregular breathing. Therefore, as far as circulation and respiration are concerned, kairin and antipyrin are endowed with diametrically opposite actions. E. *Salivary Glands.*—Both of the drugs augment the secretion of saliva; antipyrin may be detected after a while in the latter, though in small quantities. F. *Pancreas.*—Neither antipyrin nor kairin has any influence on the secretion of pancreatic juice. G. *Liver.*—Kairin increases the secretion of bile, the color of which gradually turns to black, while antipyrin remains entirely inactive. H. *Kidneys.*—Neither of the drugs manifests any action on the quantity of urine. But the first portions of urine voided after the introduction of antipyrin contain a considerable quantity of the drug. Therefore, antipyrin is eliminated from the system through the kidneys and salivary glands. I. *Motor Nerves.*—Dr. Pavlinoff confirms the statement of Morokhovetz that kairin, like curare, affects the intramuscular endings of the motor nerves (in frogs); the drug acts antagonistically to strychnine (as Professor F. P. Sheremetevsky supposed). Nothing of the kind is noted as regards antipyrin. J. *Reflex Action.*—Antipyrin increases the reflex action (as Professor Demme, of Berne, first proved). K. *Temperature.*—Antipyrin depresses the normal temperature, but not at any uniform rate, the latter varying from 0.5° to 2° C. and more; generally speaking, the depression is the more marked, the shorter are the intervals between the doses administered. Under kairin, the temperature sinks in consequence of the drug absorbing oxygen of the blood; hence the use of kairin in cases of pneumonia, chronic pulmonary disease, anæmia, cardiac disease, etc., is fraught with obvious and immediate danger. In all such cases, antipyrin may be safely and effectively administered, the drug being indifferent in its chemical behavior towards the blood, and, if anything, strengthening the cardiac action.

ON PTYCHOTIS AJOVAN.

From *Le Progrès* (Geneva, February 20, 1886) we abstract the following note about ptychotis, or carum ajovan, an Indian plant possessing medicinal virtues which has hitherto been but little known in this country.

This plant, belonging to the umbelliferæ and extensively cultivated in India, seems to have been first brought to the notice of the English profession by Dr. Percival, but soon fell into an undisturbed oblivion. The ajova seeds are, according to the testimony of DR. G. WARING, the most active of all carminative umbelliferous species, and combine the stimulating action of capsicum or sinapis with the bitter properties of chirata and the anti-spasmodic ones of asafœtida. The Indian pharmacopœia contains an ethereal oil and a distilled water, gained from the ajava-seeds. The seeds are at present largely used in the preparation of thymol, and it is possible that this drug, obtained from the ajava-base and combining antiseptic with powerfully-stimulating properties, may be of service in the treatment of cholera. As the seeds suppress the desire for alcoholic drinks, they may also form a valuable adjuvant to the therapeutics of dipsomania.

From this same journal we abstract the following remarks concerning three other Indian drugs as yet not employed by American practitioners:

(1) *Plantago ispaghula.*—One part of the seeds of this plant mixed with twenty parts of water makes a thick, tasteless jelly, and therefore is far preferable to the quince-seeds. Though of service as a demulcent in catarrhs and kidney-troubles, the principal value of these seeds lies in their efficacy against diarrhœa. The European residents of India prefer the ispaghula-seeds to any other remedy in chronic diarrhœa. The dose for an adult is 2 drachms of the seeds, taken in an uncomminuted form, with ½ drachm of sugar. The seeds passing through the intestinal track take up a large amount of water and swell up, and having passed the lower portion of the bowels, they give up the large quantity of consistent mucus they previously absorbed.

(2) *Scopolia lurida*, a mydriatic rivalling and perhaps excelling in energy belladonna. The tincture prepared from the leaves of this plant (1 part of the leaves to 8 parts of alcohol) given to various patients produced an extreme mydriasis, and in two cases even blindness, which only disappeared after the suspension of the drug. The maximal dose is 20 drops in twenty-four hours.

(3) *Jatropha curcas.*—This plant contains a milky juice possessing considerable hæmostatic power. Through the local application of the freshly-prepared juice the stoppage of hemorrhages has been obtained which did not yield to the action of alum, chloride of iron, and turpentine. It is claimed that this juice causes no pain, and has no caustic action, but that it simply coagulates the blood and covers the bleeding part with a tenacious fluid. Applied subcutaneously the juice is said also to cure aneurisms.

BELLADONNA IN THE TREATMENT OF NOCTURNAL INCONTINENCE OF URINE.

The frequency and difficulty experienced in the treatment of nocturnal incontinence of urine in children, and occasionally in adults, renders any additional light on the therapeutics of this troublesome affection particularly acceptable. A point which appears new to us is brought out in a report of a case by MR. H. A. HUSBAND (*Can. Lancet*, May, 1886), and seems to fall under this category.

The case was that of a boy, aged 19 years, the eldest of four sons, all of whom had been troubled with the same complaint since birth. The patient had at various times been treated with tincture of belladonna, but with no apparent benefit. It was found that the boy suffered from chronic constipation, which was relieved by a pill of extract of rhubarb and nux vomica, given night and morning.

The lower bowel was washed out every night with an enema of warm soap and water, and then a suppository containing one grain of belladonna placed in the rectum. The object of the enema was to clear out any hardened fæces or thread-worms, which, by their presence, might by their irritation produce the incontinence. This treatment was rigidly continued for three months with some slight benefit, a week or two passing without a return of the complaint. The amount of belladonna was now increased to a grain and a half. And then a new symptom made its appearance. The nocturnal incontinence ceased, but the patient during the day became troubled with a constant desire to pass water, the annoyance being so great that he had to micturate every five minutes. The suppository was then ordered to be used night and morning, with the entire discontinuance of the nocturnal and diurnal trouble. During the last three months the pupils became permanently dilated, but there was no

irritation of the skin, and only occasionally slight dryness of the throat. In six months a complaint which had lasted nineteen years was completely cured, and the patient was enabled to proceed to the continent on his business, taking with him a mixture containing nitro-muriatic acid, strychnine, and gentian. The conclusions drawn from the above case are these, that of all preparations of belladonna the extract is the best, that the success in treatment, to a great extent, depends on the clearing of the rectum of its contents, and the application of the belladonna as near the bladder as possible, and that partial success at first is no reason to discontinue the treatment in despair.

ON MORRHUOL, THE ACTIVE PRINCIPLE OF COD-LIVER OIL.

In spite of the numerous existing preparations and emulcents intended to disguise the repulsive taste of cod-liver oil, the objection of many patients to the oil in any shape or form cannot be overcome. In view of this fact, well known to every practitioner, the question of isolating the active principle of cod-liver oil becomes one of universal interest. M. CHAPOTEAU has the credit, as far as our knowledge goes, of having first enriched the pharmacal resources of the profession with morrhuol, the isolated active principle of cod-liver oil. The *Progrès* of February 20, 1886, contains the details of the isolating process, as first published by Dr. Joseph Lafage in *Le Bull. de Thér. and le Bull. Com.* According to the mentioned source, morrhuol is a sharp, bitter, and very aromatic substance, crystallizing partly at an ordinary temperature. It contains phosphorus, iodine, and bromine in notable quantities, about ten to twelve times as much as is contained in the primitive oil. These different bodies are so intimately united that their separation resists all efforts. The active principle of cod-liver oil is thus seen to be a rather complex body. The cod-liver oil itself loses its medicinal properties wholly after the separation of morrhuol and simply acts as a fatty substance. On account of the pungency of morrhuol it is preferable to administer it only in capsules, 3 to 5 drops, which correspond to about 1 drachm of cod-liver oil. Children 6 to 8 years of age may receive two capsules; children 8 to 12 years of age four capsules, and adults eight capsules *pro die*. Even a prolonged employment of morrhuol occasions no digestive troubles, but appears, on the contrary, to improve the appetite, and to give more rapid results than cod-liver oil.

Lafage obtained very gratifying results with morrhuol in tuberculosis at its first stage, in scrofulosis and rachitis, and in chronic bronchitis. The above recommendation of morrhuol ought to induce us to give this preparation a trial.

THE TREATMENT OF RETENTION OF URINE WITH THE CAPILLARY CATHETER.

The skilful use of the catheter in a large proportion of cases of retention of urine associated with organic stricture is followed by immediate relief, but the operation is often prolonged, and always very painful, unless performed under the influence of an anæsthetic. Sometimes the urethra is lacerated, and, when this accident occurs, irritation or fever are excited, which are soon followed by increased contraction of the strictured part of the canal. Cases of retention in which it is found impossible to introduce into the bladder any kind of instrument are of rare occurrence at the present day; but when such cases are met with, provided the patient's condition demands immediate relief, the bladder should be aspirated at once above the pubes.

DR. J. WARD COZZENS suggests in the *Med. Press*, March 31, 1886, a trial of the capillary catheter, which he has now used successfully in many cases of retention with great satisfaction. The operation is practically painless, and requires no anæsthetic, while the flexible capillary catheter, even if it fails to do good, can really do no harm. The form which he uses is a compound instrument, consisting of a filiform bougie and a fine catheter, very carefully prepared with woven web and gum elastic, and possessing great flexibility and toughness, together with a smooth and highly-polished surface. His method is to first inject the urethra with warm oil, and gently pass the catheter down to the stricture. As soon as its progress is stopped, it must be rotated between the thumb and finger, then withdrawn two or three inches, and twisted down again upon the obstruction. During the repetition of these procedures the little instrument often readily passes into the bladder. After the operation is over the instrument may be retained for a few days, or it can be removed and introduced in a day or two, and employed as a guide for a tubulated catheter.

THE ACTION OF GRINDELIA ROBUSTA ON THE HEART AND CIRCULATION.

Following the suggestion of Professor S. P. Botkin, Dr. V. P. Dobroklonsky, of St. Petersburg, has undertaken (*London Med. Record*, March 15, 1886; *Ejenedelnaia Klinitcheskaia Gazeta*, No. 34, 1884, p. 535) a series of experiments on frogs, in order to examine the action of fluid extract of grindelia robusta on the heart and circulation. The main results may be summarized as follows: 1. In small pharmacological doses (0.1 to 0.2 cubic centimetre) (1½ to 3 gtt.) the drug causes a slight and fleeting quickening of the heart and an increase of the arterial tension, lasting for several tens of minutes. 2. In large pharmacological doses (0.4 to 0.6 cubic centimetre) it decreases both the frequency of the heart and the arterial tension, the heart ultimately stopping in diastole. 3. In moderate pharmacological doses (0.2 to 0.4 cubic centimetre) the drug, in the beginning, slightly quickens the cardiac contractions and elevates the blood-pressure, but subsequently gradually, but considerably, slows the heart, the arterial tension falling somewhat later. 4. In toxic doses (0.6 cubic centimetre and upwards) the drug swiftly stops the heart in diastole. 5. A *preceding* division of the spinal cord, or of the vagi and sympathetic, or of both of the cord and nerves named, or a preceding subcutaneous injection of sulphate of atropine, does not change the phenomena as stated above; but when made *after* the subcutaneous injection of grindelia, they diminish the number of cardiac contractions from seven to six a minute. 6. A series of experiments with an isolated heart gave essentially the same results as the experiments with the whole animal. 7. Small doses of the extract cause constriction of the arteries; moderate doses first contract and then dilate the vessels; and large doses dilate the latter from the very beginning. 8. Moderate doses rapidly bring about a decrease of excitability of nerves and muscles; the excitability of nerves sinks somewhat sooner, and from comparatively lesser doses than that of muscles. Dr. Dobroklonsky at present is studying the action of grindelia on warm-blooded animals; he mentions, however, in his present note that the results obtained up to the date have been, in their essential features, identical with those for cold blooded.

In the *Russkaia Meditz.*, No. 1, 1886, p. 11, Dr. L. Grinevitzky highly praises the services obtained from the administration of fluid extract of grindelia robusta, in daily doses of 2 or 3 drachms, in inveterate chronic bronchial catarrh. Asthmatic attacks are as rapidly and as strikingly relieved. Distressing cough soon disappears, nearly altogether, and expectoration becomes easy. The drug, however, entirely fails to relieve any respiratory disturbances accompanying other pulmonary diseases, as well as those caused by cardiac and nervous diseases.

A SEMI-OFFICIAL DESCRIPTION OF SOME NEW REMEDIES.

The Pharmaceutical Commission of the German Pharmaceutical Association having received a number of new remedies for examination, has published the results in the following paragraphs (*Pharm. Journ. and Trans.*, April 17, 1886):

AMMONIUM SULPHO-ICHTHYOLICUM.

Ichthyol Sulphonate of Ammonium.

A red-brown syrupy liquid with igneous bituminous odor and taste, puffing up considerably and carbonizing when heated, and upon continued incineration volatilizing without residue. Water dissolves it to form a clear red-brown liquid of faintly acid reaction, and the same is the case of a mixture of equal volumes of alcohol and ether. Pure alcohol or ether dissolves it only partially; petroleum benzine only takes up a small quantity. Upon the addition of hydrochloric acid to the aqueous solution a dark resinous mass is precipitated, which, when separated, is soluble in ether and in water, but is again thrown out from the latter solution by hydrochloric acid or sodium chloride. Treated with potassium solution, the preparation develops an odor of ammonia, and the mixture dried and burnt yields a hepatic coal, which, with hydrochloric acid, gives off sulphuretted hydrogen.

The ichthyolate of ammonium loses upon drying in a water-bath at least half its weight.

ARBUTINUM.

Arbutin.

Slender, white shining crystalline needles, without smell, with a gradually developed, but persistent, bitter taste, melting at 167° to 168° C., and burning at a higher temperature without residue. It forms neutral solutions with 8 parts of cold water, 1 part of boiling water, and 16 parts of alcohol; in ether it is scarcely soluble. Upon heating 1 part of arbutin with 8 parts of peroxide of manganese, 2 parts of

sulphuric acid, and 1 part of water it gives off the penetrating odor of quinone. The watery solution is rendered blue by a small quantity of solution of perchloride of iron and green by a larger quantity. No precipitate is produced by either acids or alkalies. It blackens ammoniacal silver nitrate solution first after boiling with dilute sulphuric acid, and throws down cuprous oxide from alkaline copper solution upon heating. It dissolves in sulphuric acid colorless, turning red after a short time; a trace of nitric acid turns this solution yellow-brown.

An aqueous solution (1 in 20) is not changed by sulphuretted hydrogen.

NATRIUM SULPHO-ICHTHYOLICUM. ICHTHYOLUM.

Ichthyosulphonate of Sodium. Ichthyol.

A brown-black tar-like mass with a bituminous odor, puffing up when heated, and carbonizing to an alkaline hepatic coal, which colors the flame intensely yellow, and, after continued incineration, leaves an ash, an aqueous solution of which with excess of nitric acid is at once colored strongly blue by barium nitrate. Water dissolves the preparation to form a somewhat turbid, dark brown, almost neutral, liquid, with a green fluorescence. A mixture of equal parts of alcohol and ether dissolves it with a clear deep brown color, as also does benzol, but pure alcohol or pure ether dissolves it only partially, and petroleum benzine scarcely at all. The aqueous solution treated with hydrochloric acid in excess throws out a dark resinous mass, which, after separation, is soluble in ether and in water, but is again separated from the latter by hydrochloric acid or sodium chloride. No ammonia is evolved from the aqueous solution upon warming it with soda solution.

PELLETIERINUM TANNICUM.

Pelletierine Tannate. Punicine Tannate.

A yellowish amorphous powder, without smell, with an astringent taste and faintly acid reaction; soluble in about 700 parts of water, 80 parts of alcohol, and freely in dilute acids upon warming. The aqueous solution is precipitated blue-black by perchloride of iron. If a hydrochloric acid solution be shaken with excess of soda solution and ether, the ether separated leaves after evaporating spontaneously slightly yellowish oil-like drops, having a peculiar odor and strongly alkaline reaction, and which form fumes when brought near to hydrochloric acid.

PYRIDINUM.

Pyridine.

A clear, colorless, volatile liquid, with an igneous odor and burning taste, and, in aqueous solution, an excessively alkaline reaction; boiling at 116° to 118° C.; miscible clear with water, alcohol, ether, benzine, and fixed oils. Specific gravity 0.980. Pyridine gives rise to precipitates in solutions of most metals, but not in those of lead acetate and magnesium sulphate. Copper sulphate solution is colored deep blue by excess of pyridine. Hydrochloric acid solution of pyridine gives with solution of iodine a brown, with bromine water an orange-yellow, and with platinum chloride a yellow crystalline precipitate.

Pyridine should not be altered by light. An aqueous solution (1 in 10) is not reddened by phenolphthalein; 5 c.c., with two drops of volumetric potassium permanganate solution added, should preserve the red color at least an hour.

0.79 gramme (0.8 c.c.) of pyridine is saturated by 10 c.c. of normal hydrochloric acid.

THALLINUM SULPHURICUM.

Thallin Sulphate.

A yellowish-white crystalline powder, with an odor resembling that of coumarin, and an acid saline, but at the same time bitterish aromatic taste, melting upon being heated, and carbonizing to a heavy but completely combustible coal. It is soluble in 7 parts of cold water, ½ part of boiling water, more difficultly in alcohol, and almost insoluble in ether. The aqueous solution has an acid reaction, turns brown gradually under the influence of light, and gives a brown precipitate with solution of iodine, and a white one with tannic acid; barium nitrate produces a white precipitate insoluble in hydrochloric acid, and caustic alkalies give rise to a white precipitate that disappears upon shaking with ether. A dilute aqueous solution (1 in 100) is colored by perchloride of iron deep green, passing, after some hours, to deep red; fuming nitric acid colors a dilute aqueous solution reddish. Sulphuric acid dissolves thallin sulphate colorless, but upon the addition of nitric acid it becomes deep red, and immediately afterwards yellow-red.

Thallin sulphate should be kept sheltered from light.

THALLINUM TARTARICUM.

Thallin Tartrate.

A yellowish-white crystalline powder, with the smell and taste of thallin sulphate, solu-

ble in ten parts of water, less freely in alcohol, and scarcely soluble in ether. When heated, it melts and carbonizes. The aqueous solution shows the same reactions as that of thallin sulphate, except that it remains unaltered on addition of barium nitrate, and upon the addition of potassium acetate it separates a crystalline precipitate, forming flocks with lime-water.

To be kept sheltered from light.

URETHANUM.

Urethan.

Colorless prismatic crystals, odorless, and having a peculiar cooling taste, melting at 48° to 50° C., boiling at about 170° C., and subliming undecomposed, or, if ignited, burning without residue. Urethan readily forms clear neutral solutions in water, alcohol, ether, and chloroform. In sulphuric acid it dissolves without color; upon heating the solution foams and gives off a colorless and odorless gas. Heated with potassium solution ammonia is evolved.

An aqueous solution (1 in 10) does not become turbid on the addition of silver nitrate; 2 volumes mixed with 1 volume of sulphuric acid, and 2 volumes of ferrous sulphate solution run in on the top, should not form a brown intermediary zone.

A NEW OPERATION FOR CATARACT.

Surgeon-Major Geoffrey C. Hall describes in the *Indian Med. Journal*, March, 1886, a new operation for the extraction of cataract which is a sort of combination of couching and extraction, the whole idea of which is to extract the lens without disturbing the pupil. It is performed as follows: The patient being chloroformed and the speculum introduced, a large incision is made with a Von Graeffe's knife in the sclerotic about a knife and a half breadth away from the cornea, and the large MacNamara scoop is then passed in and the lens gently extracted in its capsule; atropine is then to be instilled and the eye bandaged up. The formidable part of the operation is the large size of the incision, but in Mr. Hall's experience the wound heals up very quickly without bad symptoms, although in one case he found that he had made the incision too small, and had to enlarge it with the scissors. There were no signs of iritis in any of the cases, although in two the capsule was ruptured, and in the third the incision being made too close to the cornea the iris prolapsed and had to be excised. Surgeon-Major Hall is now having a blunt instrument made with a hook to it which will impinge upon the side of the lens, and then draw it out without pressing upon the back of the iris as the scoop does. It seems possible to insure in this operation as nearly perfect success as can be hoped for from any cataract-operation, the iris, the great bugbear to all eye-operations, being left practically undisturbed.

PRECAUTIONS TO BE ADOPTED IN THE REMOVAL OF RESIDUAL URINE.

At the meeting of the West London Medico-Chirurgical Society, held March 5, 1886, Mr. E. Hurry Fenwick, after briefly commenting upon the various theories which have been framed to account for those cases of rapid death after the withdrawal of residual urine, laid special stress upon three great causative factors,—1. The reflex vaso-motor disturbance of the kidney set up by irritation of the posterior part of the urethra and the vesical nerve plexuses. 2. The introduction of septic material upon, within, or through the catheter. 3. The injurious effects upon the badly-nourished, thin-walled vascular system of the kidney and bladder by the sudden withdrawal of its accustomed water-pressure counterpoise. The precautions he adopted when he introduced a man, however young, into catheter life, were as follows: Absolute rest in bed for a week, cocainization of the prostate and membranous urethra, aseptic catheterism. The withdrawal, little by little, of the residual urine, and the replacement of the same by antiseptic solutions, such as hydrarg. perchlor. 1 in 10,000.

In the discussion that followed the reading of these papers—

Mr. Dunn said that the interest of urethral fever was centred in the indefiniteness of its origin. Its accession did not, as experience showed, depend upon any condition which could be predetermined. It followed the simple passage of a catheter, and it was met with where there was lesion of the urethral tract. But he was inclined to believe that urethral fever was always the outcome of absorption. It was evident that in clinical features, in pathological appearances, in etiology, urethral fever and septicæmia were identical. Death from urethral fever was death from septicæmia, because the cardinal features of blood-poisoning were present at the post-mortem examination. It was not

necessary to admit that all rigors following catheterism were the result of septic poisoning. For some of these could be accounted for by attributing them to the manifestation of latent ague, and perhaps this would explain the rigors which have been regarded as having a neurotic origin. Sir James Paget has shown that the aguish attack may be provoked by an operation many years after the patient has suffered primarily from the disease.

MR. BRUCE CLARKE had not noticed any bad results in these cases where the symptoms could be attributed to nervous causes. The more, however, he saw of urinary fever the more he felt convinced that the disease was due to dirty catheters. In a case of residual urine which was under his care at St. Bartholomew's Hospital, the neglect of certain precautions which he always insisted on in regard to the cleanliness of the instruments was followed by serious results. Each patient under his care whose urine is required to be drawn off has a catheter for himself, which is kept, except during use, always in a solution of carbolic acid (1 to 100). He injected brine into the bladder when a tonic and antiseptic was required. He always used a new catheter in special cases. Internal urethrotomy deep down he considered was by no means a safe operation. In preference to performing this he would do external urethrotomy. He was surprised to hear Mr. Fenwick saying that the treatment of a case of stricture by electrolysis had been followed by a severe rigor. He had never in his experience, which was somewhat extensive of this treatment, met with this result, though he had seen one case in which there was a slight rise of temperature.

MR. KEETLEY agreed with Mr. Clarke that catheters should never be used where bougies would suffice. He cited cases to prove that in a considerable proportion of those in which rigors, etc., occurred, they followed the forcible use of larger instruments than the strictured urethra would bear. Deaths from pure nervous or reflex causes were excessively rare in connection with injuries to other parts, and he could not believe that they were frequent after interference with the urethra.

DR. POPE was sorry to learn from Mr. Fenwick that bacteria rejoiced in fat. This fact introduced some difficulty into the case when a lubricant for a catheter was required. He agreed with Mr. Dunn that latent ague was a cause of rigors after catheterism. He had a case under his care at present which bore out this hypothesis.

MR. EDWARDS, in reply, said that external urethrotomy was more often followed by urethral fever than was internal, for in eleven cases at St. Peter's nine had rigors. Of the three cases he had brought forward, death was due in two to septic absorption. In the other, irritation due to instrumentation of the deep urethra caused reflex congestion of internal organs, accompanied by a rigor. This proving too great a strain for the central arteries, which were highly atheromatous, extravasation, followed by softening, occurred. In all three the urine was normal before the operation, and in the first and second the kidneys were found congested after death. The third case was the first death Mr. Edwards had had in about forty cases of internal urethrotomy. Why pyæmia occurred he could not say, as he took unusual antiseptic precautions by throwing into the bladder an iodoform solution, and by the insertion of an iodoform bougie into the urethra. There was no difficulty nor hitch in the performance of the operation. Concerning the question of ague, it was a well-known fact that patients who had lived in the East, or who had been subject to ague, were peculiarly liable to rigors after interference with the urethra.

EUCALYPTUS AS A TOPICAL AGENT.

In the *Cincinnati Medical News*, April, 1886, DR. P. T. WILLIAMS states that he was led to use eucalyptus as a topical application to the inflamed surface in cases of erysipelas by being told by an old sailor that he had been treated in that way by a physician in one of the East India Islands with most striking success. Dr. Williams reports three cases of erysipelas affecting the face and right leg, another the face, and another the scrotum, in which the application of the fluid extract of eucalyptus promptly arrested the itching and burning sensation, and the exudation of the peculiar gummy discharge.

In a case of caries of the tibia, with extensive inflammation of the skin, attended with the formation of numerous blebs and small ulcers, the happiest results followed upon the local use of the fluid extract of eucalyptus. In the cases of erysipelas it was applied, by means of a camel's-hair brush, every four hours. In the case of disease of the tibia he employed it twice daily. In each case appropriate internal treatment was made use of.

Dr. Williams's experience with eucalyptus as a topical agent, of course, is too limited to base much of an estimate in regard to its value, but the seeming beneficial effects fol-

lowing in the few cases he has mentioned, together with the data already published on this subject in previous issues of the GAZETTE, encourage one to believe that it can often be used with advantage locally; that there can be obtained from it all the benefits that are to be had by the employment of the tincture of iodine, solutions of nitrate of silver, salts of iron, etc.; and that it can be made use of when these could not be in consequence of some objectionable features attending their application.

Reviews.

THE PRINCIPLES AND PRACTICE OF SURGERY. By Frank Hastings Hamilton, A.M., M.D., LL.D. Third Edition.
New York: William Wood & Co., 1886.

Professor Hamilton's work on surgery was first issued fourteen years ago; a second edition followed a year later, in which only the typographical errors of the first edition were corrected, and a few statements modified, so that a comparison of the first edition with the present one should give some idea of the advances made in surgery during this interval. At the present time, a decade and a half in the history of any of the sciences or arts is certainly long enough to establish the truth or to demonstrate the error of what has been proposed in theory, and to improve upon what has been found wanting. If there has not been either a theory proven or a deficiency filled, we truly have stood still.

In the author's preface to his last edition it is stated that in order to properly represent the progress of surgical science he has thoroughly revised the former editions of his book, and therefore it becomes our task to briefly note where, in the author's opinion, surgeons have improved in the practice of their art or advanced in the knowledge of their science.

The chapters on inflammation, abscess, ulceration, and gangrene are in no way added to or changed from the former edition of the author's work; indeed, they are word for word the same. The chapter on wounds presents but few alterations, and only such as to more strongly emphasize the author's former views, in so far as they are opposed to the antiseptic dressing of wounds by the employment of the various antiseptic solutions, carbolic acid, bichloride of mercury, etc. Under gunshot wounds a brief account of President Garfield's case has been added. Exploration of the abdominal cavity, in cases of gunshot wounds, for the purpose of searching for lesions of the various viscera, is not thought to be advisable.

The chapter on venereal diseases remains as in former editions, even to the author's opinion on syphilization. This method of treatment for syphilis was being strenuously advocated by Prof. Boeck about the time Prof. Hamilton's book first appeared. Since that time the fallacy of this means of treatment has been demonstrated, and syphilographers of to-day are united in the opinion that it is wrong in theory and useless in practice.

Chapter xiii., "Lesions of the Nervous System," is, with the exception of the section on tetanus, entirely new. It includes tetanus, shock, section of the nerves, stretching of nerves, and coccydinia. A short description of railroad shock is given, and the author very justly, we think, believes that while the spinal marrow or central nerves may be injured in this class of accidents, it is more frequently a primary injury inflicted upon the ligaments of the spinal column, and that secondarily inflammatory action may be propagated eventually to the meninges and marrow. This explanation is thought by Prof. Hamilton to account for the difference between the injuries to the spine caused by railroad collision and those caused by other traumatisms. Section of the nerves for neuralgic affections the author considers to afford only temporary relief, and resection, while it gives a longer period of freedom from pain than section, has, in his experience, never resulted in a permanent cure. In connection with this subject, there has recently been published a very able and exhaustive paper by Geo. R. Fowler, M.D., of Brooklyn, in the *Annals of Surgery* for April, 1886, entitled "The Operative Treatment of Facial Neuralgia." The following conclusions are reached by this writer:

"1. Neuralgias of the fifth cranial nerve, of peripheral origin, which have resisted methods of treatment other than operative, may be expected to yield to the operation of neurectomy of the trunk or trunks whose branches are distributed to the painful area. In this class of cases the neurectomy should be carried, if possible, to the point at which the nerve makes its exit from the cranium.

"2. Cases of central origin should be first submitted to a limited neurectomy, conjoined with nerve-stretching, in the hope that the process of regeneration thus set up, together with the rest gained by interrupting the centripetally-conducted stimuli, may favorably in-

fluence the diseased central organ. In case of relapse this may be repeated, providing the period of rest thereby gained corresponds to the length of time which Waller's investigations show to be usually occupied by the process of degeneration and regeneration. If no relief is gained, a similar operation should be performed upon all the divisions of the fifth nerve. This failing, a complete neurectomy of each division accessible should be done; and, finally, ligature of the common carotid may be tried as a last resort.

"3. In cases of doubtful origin, a complete neurectomy, followed, in cases which relapse, by ligature of the external and common carotid in turn, hold out the best prospect of cure.

"4. A complete neurectomy of the second division of the fifth necessarily involves the extirpation or destruction of the spheno-palatine ganglion; and to this fact, rather than to any intrinsic tendency of the ganglion itself to keep up the irritation causing the neuralgia, is to be attributed, in all probability, any increasing immunity from relapse claimed to have been obtained in those cases in which Carnochan's operation has been performed.

"5. No patient should be denied, other things being equal, the chance which any one or all the operations in turn may give him of escaping, even for a short time, the intolerable suffering incident to an intractable or otherwise irremediable facial neuralgia."

Esmarch's bandage for the arrest of hemorrhage is mentioned as one of the means which may be employed by the surgeon in suitable cases. Its advantages in certain cases are apparent, its disadvantages the author has not neglected to point out. It is to the latter we would especially direct attention. Acupressure, which in former editions received a detailed description of the various methods for its application, has in the present volume been omitted, since the author, in accordance with most surgeons, believes it should be abandoned. It is with great deference that we venture to differ with the opinion of Prof. Hamilton, obtained by a long experience, and especially upon such an important subject in surgery as the nature of the ligature to be used in the tying of arteries; but, although our experience has not been so extensive, it has, we think, been quite sufficient to thoroughly convince us of the very great superiority of the catgut ligature over the silk. His objection to the gut ligature is in its employment in ligating large arteries. In these cases he thinks it is unreliable, and therefore secondary hemorrhage may occur. To say this unfortunate accident cannot take place when the gut is used is no more true than to say the same for the silk ligature, since experience tells us it has happened with both; but we do not believe there is any more liability of its occurrence when the gut is used than when silk is employed, and the many other advantages on the side of the gut are, at least in our opinion, so far superior to the silk, that we do not hesitate to utilize it upon every occasion when ligature is necessary.

The chapters on fractures and dislocations remain, without any essential changes, as in former editions of the book; indeed, it would be scarcely possible to improve upon this most excellent portion of Prof. Hamilton's work. The treatment of these lesions is briefly given, and it is on account of this brevity that we recommend it. No confusion or undecided statements are found, but the reader is at once informed what has, in the experience of the author, been found most successful in his practice, and the method of its application is clearly given. We may mention that, in previous editions, the treatment of fractures of the thigh by plaster of Paris was rather favorably spoken of. Now, however, Prof. Hamilton writes, "A further personal experience, together with the personal experience of others as it has come to my knowledge, enable me now to say that the plaster of Paris is not a safe or judicious dressing for fractures of the thigh, either for fractures through the shaft or for fractures near the upper or lower extremities of the bone, for fractures in children or in adults, for compound or simple fractures. Its use under all the circumstances named has been followed by a larger proportion of failures and disasters than any other plan of treatment known to me, such as great shortening of the limb, deformity, non-union, delayed union, gangrene, and death."

The treatment of fractures of the patella by wiring the fragments, with antiseptic precaution, is an operation that finds no favor with our author. From the unfortunate results that have occurred when the operation has been resorted to, he concludes that "such experience renders argument unnecessary."

Prof. Hamilton's opinion of gastrotomy is best given in his own words. He writes, "As a means of enabling the surgeon to dilate, by the finger or otherwise, a stricture of the pylorus, it is, in my opinion, not entitled to one moment's consideration.

"Finally, when made for the purpose of removing a portion of a cancerous stomach, it

is simply an ante-mortem dissection, and has no proper place in surgery.

"Both of these latter statements are made after a study of the reported cases, and with a just appreciation, I hope, of my responsibility to suffering humanity. In neither case can there be anything more than an approximate knowledge of the actual pathological condition and complications, and in neither case can anything but temporary relief be afforded, and that at the imminent risk of immediate death, or of death resulting directly from the operation."

A section on "Lesions of and Operations upon the Gall-Bladder" has been added to the present edition. It treats of abscess of the gall-bladder, fistula of the gall-bladder, and obstruction, concerning which he believes that "in most cases the causes of obstruction will be found to be beyond detection, and their removal beyond the skill of the surgeon." Cholecystotomy, estimated from the ratio of mortality, is thought now to be "accepted as one of the legitimate alternatives of surgery." Cholecystectomy is considered to be a questionable operation. Cholecystenterostomy is said to be "entitled to no further consideration than its mention, and to say that it proposes to substitute a very unsafe and uncertain operation for one which is comparatively safe and certain in its results."

The treatment of stricture of the urethra, after the method especially practised and recommended by Dr. Otis, is strongly opposed by Prof. Hamilton, and he is in perfect agreement with the views of Dr. Ranney, whom he quotes to sustain his opinion. From our reading of Dr. Otis's last work on "Stricture of the Urethra" we are inclined to look more favorably upon his method of treating this lesion. The very extensive experience and the almost constant success in the results of the operation obtained by Dr. Otis, would seem to show that by adopting his procedure we would gain much in our treatment of these cases.

As regards Bigelow's method of operating for vesical calculus, Prof. Hamilton thinks "it would be premature to declare for it unquestionably, at present, superiority over all other methods, notwithstanding it has received the approval of our best surgeons, and has satisfactorily borne the test of considerable clinical experience."

Dolbeau's method for the same affection is thought to have "very little to recommend it, and has not been generally adopted." The method of operating for stone by the suprapubic operation remains as it was written in 1872. The procedure of elevating the bladder above the pubes by distention of the rectum should, we think, have been referred to. This operation was first performed in 1880 by Petersen, of Kiel, and since by other surgeons, among whom Sir Henry Thompson may be referred to as one of its most ardent advocates, and in his recent monograph upon this operation he writes, "The high operation for opening the bladder has, in my opinion, been rendered so safe and efficient by certain modifications recently made, chiefly by Professor Petersen, of Kiel, as to deserve the careful attention of all practical surgeons."

Digital exploration of the bladder, performed by means of perineal section, and adopted by Sir Henry Thompson, has not been mentioned by Prof. Hamilton. This oversight is unfortunate, for we believe there is no method so certain to remove the difficulties of arriving at a correct diagnosis, in cases of tumors of the bladder, as the one proposed by Thompson.

Oöphorectomy, or spaying, is briefly described, and from the results obtained in its performance, of the cases published, the author considers the mortality much too great to justify the operation.

Alexander's operation for shortening the round ligaments is disapproved of in strong terms, and, after describing the method of operating, Prof. Hamilton writes, "It seems to me incredible that any person who has acquired even the rudiments of surgical science should perform an operation so unsound in theory, and plainly so unsafe in practice." A paper published in the *Boston Med. and Surg. Jour.* for April 29, 1886, by F. B. Harrington, M.D., discusses this operation. He gives a table of the cases so far reported and the results, which is again an evidence of the want of agreement among surgeons. Thus, there are twenty-two operators who have reported cases, among whom seventeen consider the operation good, four are doubtful, and one believes it bad. The number of cases treated are one hundred and forty-two. Of these, one hundred and twenty-seven are said to have resulted good and fourteen bad. One death only is reported to have occurred in the one hundred and forty-two operations. These results are certainly not in accord with the opinion of Prof. Hamilton, and it seems to us he has been somewhat hasty in forming his conclusions.

Emmet's operation for laceration of the cervix uteri is said to be "not always successful.

It is attended with the danger of sometimes giving rise to a serious and even fatal metritis and perimetritis, and the laceration is pretty certain to be renewed in a succeeding labor."

Laceration of the perineum, according to Prof. Hamilton, whose opinion is based upon an early obstetrical experience and a late surgical experience, is believed, at least the more graver forms of this lesion, to be much more common now than formerly, and this increase he thinks is owing to the more frequent use of the forceps and anæsthetics in labor. For very good reasons, the primary or immediate operation in the treatment of this lesion is opposed. The secondary operation is advocated, and preference is given to silk ligatures.

The chapter on anæsthetics is a very valuable addition to the present volume. Prof. Hamilton thinks "ether ought generally to be preferred to chloroform." The internal administration of stimulants or opiates, either before or after giving anæsthetics, is not thought to be of any benefit. Local anæsthesia, produced by cold or the spray, is considered very limited in its application, and frequently in the first period of their application they occasion pain, so that most patients are willing to submit to the operation without their employment. Cocaine hydrochlorate is mentioned as one of the most recent local anæsthetics, and it is thought that "the intelligent surgeon, understanding its physiological action, will have no difficulty in selecting for its employment the appropriate cases."

Prof. Hamilton has added a supplementary chapter to this edition of his book, entitled "*The art of primary union, or union by adhesion in large wounds, with a consideration of the value of antiseptics in these and other wounds.*" Four conditions are said to be necessary to insure "primary union," or "union by adhesive inflammation," in large wounds. These terms are considered synonymous.

1. "A good, or at least an average, state of the general health, and especially the absence of any systemic infection or dyscrasy."

2. "The removal of all foreign bodies from the wound."

3. The coagulation of the lymph, which is indicated by the glazed appearance of the surface, therefore the wound is to remain open until this appearance is presented.

4. Precaution must be taken not to do any unnecessary violence to the parts, since it tends to increase inflammatory reaction, "and to carry it beyond the limitations which are assigned to the effusion of emplastic lymph."

Prof. Hamilton further adds, "I believe also that a strict compliance with these rules constitutes the only grounds for the superior success of some surgeons, as compared with the success of others, at the present day; and if their success is greater than that of surgeons who fifty or one hundred years ago practically applied these rules,—and I am willing to concede that it may be, although it is not proven,—it is because they have more exactly complied with the conditions named."

"What treatment," our author asks, "either ancient or modern, has presented a better record than this furnished by Alanson, Syme, Liston, Percy, Lucas, and, so far as we know, by the faithful disciples and distinguished advocates of their practice? It is scarcely necessary to remind the reader that these results were obtained before the introduction of anæsthetics or of antiseptics." From these quotations it is very evident that Prof. Hamilton does not believe in antiseptic surgery, as introduced by Mr. Lister, but it is, he says, "through the agency of one man, Mr. Lister, the practice of union by adhesion was happily restored;" and, again, "the influence of Mr. Lister, backed by his specious theories, secured a return to the old practice of the advocates of primary union in all its essential details, and to this it added antisepsis." This addition of antiseptic solutions is believed by our author to act purely as "moderate stimulants and astringents." The germ-theory is said to be "only a *theory*, and one which is far from being universally accepted."

The conclusion to which Prof. Hamilton is brought from his investigations of antiseptic surgery is as follows: "The conclusion to which we are brought is, that while we are indebted to Mr. Lister for having restored confidence in union by adhesion, it seems equally certain that his excellent results have been obtained, not by a literal compliance with the rules which are the logical deduction from his theories, but by his strict enforcement, in the practical application of his theories, of certain other conditions, which he seems to regard as accessory and incidental rather than of paramount importance."

The differences of opinion in regard to antiseptic surgery are still in existence. This method of treatment from its beginning met with much opposition; but while it has not yet become universally adopted, it has, however, wonderfully added to its ranks, and has gained a foothold in surgery so firm that we

believe it will eventually supersede every other method. We will not venture to assume the position of a judge; in fact, we only speak from our own experience, and are convinced only from our own results. It is on the ground alone of success that we must give credit to antiseptic surgery for better results than we ever obtained without it.

We stated in our first paragraph that the object we had in view was to ascertain what advances surgery has made, in the author's opinion, during the interval between the first and last editions of his book. We have made the comparison, and the reader has the result. Some additions may have been overlooked, but we have endeavored to give all, and our own conclusion, we regret to say, is that, if we are to judge of the progress made in the "Principles and Practice of Surgery" upon the evidence presented by Prof. Hamilton, it has advanced but little.

In concluding our notice, we wish to speak of Prof. Hamilton's work as a whole, and too much praise cannot be given to it for reliability and clearness. The student, for whom the book is more especially written, cannot have a better guide to lead him in the paths of surgical knowledge, and the practitioner will seldom regret having followed the advice given by our author. J. H. C. S.

THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE EAR. By Oren D. Pomeroy, M.D., Surgeon to the Manhattan Eye and Ear Hospital, etc. 8vo, 413 pp. One hundred illustrations.
New York: D. Appleton & Co.

The fact that Dr. Pomeroy found it necessary to publish a new edition of his work in a little over two years, indicates that the first edition received its due appreciation at the hands of the profession. Evidences of careful revision are frequent, and the changes made represent the advances in the field of otology since the first edition was published. Twenty-nine pages of reading matter and several illustrations have been added, while the beauty of many of the old wood-cuts has been enhanced by recutting.

As was the case with the first edition, the author saw fit to omit a chapter on anatomy and physiology of the organ treated. This is to be regretted, as his descriptive ability might have served him advantageously to present a clear and concise study of a subject usually very difficult to understand. The work begins with a description of the instruments used in the examination of the ear, with hints as to the modes of testing the hearing and an enumeration of the appearances of the normal drum membrane. The diseases of the auricle are next treated, this being followed by a chapter upon the diseases of the external auditory canal. Before entering upon the discussion of the diseases of the middle ear, the author wisely gives a *résumé* of the affections of the post-nasal space, indicating the methods of treatment to be employed for the eradication of the primary troubles located in this position, so often overlooked. Mastoid affections next receive attention, but few pages, however, being devoted to their consideration. Under the head of "Unclassified Affections" twenty subjects are considered, the syphilitic diseases being included in the series. The book ends with a few pages upon ear-trumpets, the audiphone, and the Japanese fan.

The author's extensive hospital facilities and private practice are used to great advantage to illustrate the value of the therapeutic measures recommended, his vast experience enabling him at the same time to speak in a manner which at once conciliates the confidence of the reader.

As an aid to the general practitioner, Dr. Pomeroy's work is exceedingly valuable. While not exhaustive, which its size, of course, does not permit it to be, it is sufficiently complete to render great assistance in any variety of cases that may be met with. Each subject is subdivided into *subjective and objective symptoms, etiology, diagnosis, prognosis, and treatment*, and, unlike the majority of works, these subdivisions are so strictly adhered to and so well defined that the busy practitioner may be certain of finding under each subheading all the information that the work affords.

The style is terse and to the point, although the frequent and sudden changes from the purely descriptive to the imperative might be considered as objectionable. A few corrections are still needed, among which "Noyes's Polypus Forceps," "Sass's Spray Instrument," and "Cannula" may be cited. These will surely receive the author's attention in the third edition.

We can heartily recommend Dr. Pomeroy's work to the profession, and wish it all the success it deserves.

A GUIDE TO THE PRACTICAL EXAMINATION OF URINE. By James Tyson, M.D. Fifth edition.
Philadelphia: P. Blakiston & Co., 1886.

It has, we believe, been less than ten years since the first edition of this small practical manual was given to the world. Books on

diseases of the kidney and of the chemistry of the urine and allied subjects are about as plentiful as herring in season on the coast of Scotland; but the success of this brochure shows that there is always room for one more fish, provided said one be of superior flavor. The present volume has been brought by Prof. Tyson thoroughly up to the advances of the day, so that the fifth edition is even more satisfactory than was the first, and we have no doubt will have equal success.

A Reference Hand-Book of the Medical Sciences, embracing the Entire Range of Scientific and Practical Medicine and Allied Sciences. By various writers. Edited by Albert H. Buck, M.D. Volume II.

New York: William Wood & Company, 56 and 58 Lafayette Place, 1886.

Some months ago we reviewed at considerable length the first volume of this work, pointing out its general scope, and commenting upon its execution. It seems scarcely necessary to do more than to state that the present volume reaches to the end of the letter "e," and that the reader and probably the subscriber also begins to appreciate the comicality of calling this great encyclopædia a hand-book; and we can only reiterate our heartfelt wishes that there was some way of hanging publishers, editors, writers, printers, printers' devils, and all concerned in this misusing, defiling, and bringing to shame what would be called in England the queen's English, but which in this country bids fair to become a mere democratic lingo.

Once having crossed the shackly, tumble-down, miserably put-together, uncouth, wretched bridge of a title into the main pastures of the book, we find the same excellences which we noted in the first volume. The articles upon Mineral Springs are very full and very valuable. The therapeutic articles by Dr. S. Nicholls are condensed, but show a very thorough knowledge of medical literature, and seem to us to be written with judgment. The pictorial features of the book are well maintained by plates for show and wood-cuts for use. The medical practitioner of æsthetic turn and limited means, to whom fortune has assigned a copy of the book, may well cut out the chromo-lithograph of dogwood and frame it to ornament his office. Possibly it is just as well to have this chromo-lithograph inserted in the book as it would be to distribute it as prizes. A picture, which, on account of the pious, resigned expression on the face of the victim, might be used for circulation among the chronically and hopelessly afflicted, is that of Elephantiasis, in which the trunk and face of an hysterical female are attached to an enormously hypertrophied leg. With closed eyes and folded hands she is commending to the notice either of the reader or of a watchful Providence her misfortunes and her resignation.

To show how carefully the out-of-the-way corners of the medical field are cultivated, we may mention that Dr. Greenleaf's very elaborate article on the examination of recruits for the army occupies no less than fifteen pages, which, on account of the size of the page and the fineness of the print, is enough space for a small treatise.

Materia Medica and Therapeutics. By Charles D. F. Phillips, M.D.

Philadelphia: Blakiston, Son & Co., 1885.

In 1882, Dr. Phillips published a work upon the inorganic substances of the materia medica, and, as the pages of the book before us are devoted to the consideration of the materia medica and therapeutics of organic substances, the two volumes form a complete treatise on materia medica. There are in the present book over one thousand pages, occupied with a large, heavy-leaded, pleasant type, and much waste of blank paper between the paragraphs and larger divisions. To those who are accustomed to the artistic medicine books of North America, this thick, stumpy, heavy, unhandy method of publication, so frequent in Great Britain, is especially annoying, but we suppose it is hopeless ever to expect any artistic sense in a people whose ancestors were nurtured among the hyperborean fogs of Frisia. A little care would have reduced, probably by some hundreds of pages, the thickness of the book, much to the comfort of the lap of the student.

Coming to more important matters, we find little to complain of. The style is clear, the author reasonable, and good use has been made of the standard treatises upon the subject: Dr. Phillips is especially to be commended for the honesty which causes his pages to be plentifully spotted over with the names of well-known authors of leading therapeutic treatises. He does not appear to have himself largely read the original literature of the subject, at least as it exists in the German and French languages.

We observe, among other things, that the American drug rhus toxicodendron receives quite a lengthy notice, and is particularly commended in "herpes zoster, pemphigus, and eczema, especially when accompanied by

burning or itching sensations;" . . . "in erythematous erysipelas, particularly when vesicles and bullæ develop, this is a good remedy." Dr. Phillips also commends rhus in chronic rheumatic affections of the fibrous tissues, and in the after-state of acute rheumatism when the temperature has fallen, but the patient still complains of stiffness and wearing pains. In these cases he applies the tincture in the form of a liniment, and gives it internally in from 5- to 10-minim doses from two to four hours. We believe the drug has been quite largely used in this country by irregular practitioners, and have ourselves employed it internally in four or five cases of subacute rheumatism, but after thorough trials failed in any of these cases to obtain any other effect than irritation of the stomach and consequent loss of appetite.

The book of Dr. Phillips is one evidently intended for students, and we suppose will have in its own country a satisfactory sale. But there do not seem to us in it any sufficiently original features, or any sufficiently active excellence to give it headway in the face of the standard treatises which at present hold the American student market; nor, indeed, can we see any reason why the American practitioner should add it to the lists of his book-shelves. The activity of medical writers, stimulated as it is by the greed of the publishers, produces now yearly such an overwhelming mass of literature, good and indifferent, that the doctor must needs look carefully as to his purchases. There is an abundance of books of original merit to absorb all the spare cash possessed, except by the most fortunate of the profession. Further, the purchasing zeal of the American public will not be stimulated by the fact that the price of the present volume is $7.50, so that if the two volumes necessary to complete the work are bought, the cost will be one-half more than that necessary for the United States Dispensatory, which probably contains nearly twice as much matter as the two volumes of Phillips.

COCA, COCAINE AND ITS SALTS; THEIR HISTORY, MEDICAL AND ECONOMIC USES, AND MEDICINAL PREPARATIONS. By William Martindale, F.C.S., etc. London: H. K. Lewis, 1886.

This little book is the biography of coca. It gives us its early history, and all the superstitions in regard to it, and we had no idea how many superstitions there were. It seems to have been a sort of royal tobacco. The Incas of Peru chewed it, and the priests, having no cuspadores, expectorated its juices upon their burning victims. If a citizen became great and renowned, only then did the Inca offer him a chew. They, even, so far from throwing away their quids on entering their places of worship, considered that the divinity was kindest to the man whose cheek bulged out the most. They place it at the present day in the mouths of the dead,—even corpses like it,—and the author quoted irreverently goes on to say, "And when a Peruvian Indian on a journey falls in with a mummy, he presents to it some coca-leaves." Of course, with us, one might take very long journeys and never fall in with a mummy, or fall out either. And, as though the above specimens of literature were not enough, we have a chapter on "Coca in literature." The author somewhat sadly says, "Milton appears not to have known of it." Cowley evidently did, and produced more than a page of dreadful verse, but if one chews some of this leaf he may read the poetry without pain. Milton's case is more sad, for Milton was a poet. He never knew of coca; if he had he might have shown us Lucifer himself using it to allay his hunger in the realm where fire is plenty but food scarce, or in paradise the Erythroxylon Coca might have figured as the tree of life. Had our first parents partaken of its leaf no hunger would have impelled Eve to the fatal apple. She would have needed no lunch, and posterity would have remained sinless and pure. E. W. W.

A TREATISE ON BRIGHT'S DISEASE OF THE KIDNEYS: ITS PATHOLOGY, DIAGNOSIS, AND TREATMENT; WITH CHAPTERS ON THE ANATOMY OF THE KIDNEY, ALBUMINURIA, AND THE URINARY SECRETION. By Henry B. Millard, M.D., A.M., Member of the New York County Medical Society, etc. Second edition. Revised and enlarged.

New York: Wm. Wood & Co., 1886.

The author dedicates his work to Drs. J. M. Charcot and M. Debove. The volume, he tells us, is the result of twenty-six years of hospital and private practice and of laboratory study-trial. The illustrations were drawn by himself, with a few exceptions, and he employs the word albumin exclusively throughout the book, leaving albumen to designate the white of the egg. After devoting seven chapters to the anatomy, etc., of the kidneys, chapter viii. discusses the "significance of the existence or non-existence of albumin in the urine,—a question of growing interest and of the deepest importance." That there is a physiological appearance of albumen the author fully believes, independent of its transient ap-

pearance after indigestion, great mental or physical effort, etc. This statement is at variance with the belief of many authorities, who only admit its appearance in persons "apparently" in perfect health. The author, after a long discussion, says, "Where it occurs frequently and in such quantities as the one-fortieth to the one-tenth of one per cent., it may be regarded in the majority of cases as an evidence of renal lesion."

The chapter on "the tests for albumin" goes very thoroughly into the subject. He quotes Méhu as saying that the most albumen he ever found was in less proportion than two and a half per cent.; the common error of overstatement arising from the fact that urine containing 1.5 per cent. will seem to become almost solid. The author rejects in this edition the picric acid test among others, because it produces precipitates "with the parapeptones and all protein compounds." This, however, does not destroy its value as a ready test. So long as no one proves that it fails to precipitate albumen, if no precipitate be found by picric acid, then it has answered its purpose if precipitation occurs; further tests may be employed. After a careful study for two years, the author settles on four tests as best of all, and wants no better, unless it be one to show with precision the difference between albumen and mucin. The four tests are "nitric acid, heat, Tanret's test," and his own test of "phenic acid and acetic acid and potash." In the nitric acid test he pours the urine slowly upon the acid by a pipette. This test he has proved capable of showing one part in 100,000. Tanret's test of the double iodides of mercury and potassium, to be made by the formula given on page 62, will show, the author claims, one part in 250,000, while the author's own test, "which gives him great satisfaction," as our own tests always do,—to ourselves,—"shows one in 300,000 undoubtedly."

The question of casts, their nature, mode of formation, and significance, with general directions for examining for them, is carefully discussed.

The author concludes, from a careful study of Bright's writings, that the name Bright's disease is in general applicable "to those diffuse inflammations of the kidneys accompanied by albuminous urine, either constant or intermitting." He himself considers all varieties of nephritis under three heads,—"Croupous, Interstitial, and Suppurative."

In croupous nephritis the author believes the chronic form to be seldom a sequel of the acute. He doubts whether it ever arises from the acute nephritis of scarlatina for instance. This opinion he subsequently modifies somewhat, and says (page 162), "I am constrained to believe that if the acute nephritis be imperfectly cured, although the symptoms may be wanting for a long time, sooner or later manifestations of chronic nephritis may occur." Malaria he recognizes as a common cause, special irritants, as ginger and cantharidal poisoning, while he doubts the direct action of alcohol in excess as a factor. In regard to the malarial cases of nephritis, he notes that in them albumen is never absent.

Interstitial nephritis the author divides into acute and chronic, though admitting that the recognition of the acute stage will be generally retrospective, like the Hibernian's "prophecy after the event." The acute form he believes to be "due in nearly all cases to cold," or the extension of chronic or severe acute cystitis. We are left by his language somewhat in doubt whether the acute cases "nearly all" so produced are the acute cases which form the first, rarely discovered stage of the chronic cases or not. Damp, cold, and catching cold are the principal causes given by the author. Heredity limits itself as a factor to gouty, tuberculous, or syphilitic cases. Malaria, with repeated chills, in his own experience, has formed part of the history of a considerable number of patients, while he "has not been able to trace a single case to the direct effect of over-use of alcohol." The author recognizes the fact that the gouty paroxysm is frequently associated with albuminuria, and quotes from Charcot, "Albuminous nephritis, when dependent upon gout, is distinguished especially by its apparent benignity and its slow evolution." The question of the action of lead on the kidney is inquired into, and there is a very interesting chapter on the topics of "Nephritis without Albuminuria," and of "Epithelia in the Diagnosis of Nephritis."

Part II. is upon treatment. In acute croupous nephritis, rest, diet, diaphoretics, are recommended; for producing action of the skin, the author uses the hot-air and vapor bath and jaborandi. When there is insufficient power of left ventricle, convallaria majalis and digitalis. Caffeine ranks with digitalis as a diuretic and heart-tonic; "in venous stenosis, valvular disease, and dilated heart it is better." The author calls attention to the oft-forgotten fact that to derive benefit from saline diuretics the solution must be of less specific gravity than the blood

itself. Tinct. ferri chl. alone, or with digitalis, he gives in feeble heart and impoverished blood, sometimes with cantharides. This remedy, however, he never uses in early periods, but after acute symptoms have subsided. As to the effects of nitro-glycerin, he admits his inability to account for its beneficial action on any plausible theory, but suggests that it acts "through the renal ganglia entirely." In acute nephritis he has not employed it, but in a case of polyuria, with tense, hard pulse, he gave a patient by its means great relief.

The author then gives his opinion of the mercurials, considering them as capable, either "alone, or in combination with other remedies and measures, of curing many cases of acute, and some even of chronic nephritis." He employs generally the mild chloride in interstitial and the bichloride in croupous nephritis, but occasionally the reverse. Though he can give no reason or indication for so doing, it is evidently from instinct that he does so. The mild chloride he gives, triturated with 100 parts of milk-sugar, in doses of $\frac{1}{10}$ to $\frac{1}{20}$ of the salt every two or three hours.

Of the bichloride, he uses a trituration of which 10 grains contain $\frac{1}{1000}$ of a grain of the salt. This is his usual dose, though larger can be given. He knows (page 203) "that the possible effect of such small doses will be regarded by many with incredulity, but their value has been demonstrated, . . . and the recognition of the efficacy of these doses is a matter of simple and assured truth." And adds, "Particularly is this shown in those cases in which the dual action of drugs is manifest, as in the action of corrosive sublimate upon the kidneys in health and disease." And again, page 205, "It is a matter of no slight interest to consider that while corrosive sublimate will often correct pathological conditions characterized by albumin, bloody urine, or suppression, the same remedy, taken in health in toxic doses, often produces those very conditions. I do not propose to descant upon the merits of any theory, still less to support any supposed law of cure." The subject of cantharides gives the author a chance to indulge in somewhat similar remarks. Nitric acid, either with or without mercury, he finds useful, especially in the gouty kidney. Arsenious acid he believes should be a useful remedy "from its action on the kidneys when taken in poisonous doses." In short, the author goes over the whole list of usual and unusual remedies, giving them a full and intelligent discussion.

In the treatment of chronic interstitial nephritis, the questions of climate, diet, general hygiene, mineral waters, etc., are entered into. As to special remedial measures, he would restrict potassium iodide to syphilitic, lead-poisoned, or gouty cases. He suggests that lead also might prove a good remedy, being evidently impressed with the idea that there is but one way of discovering "cures," viz., that the bane is the antidote. But of all remedies after the mercurials he considers the chloride of gold and the chloride of gold and sodium, given in doses of from $\frac{1}{10}$ to $\frac{1}{100}$ grain three or four times a day, as perhaps the best. With him they have "proved of great value."

Throughout the book one is struck by the excellent ability of Dr. Millard as a writer: his style is enticing and his sentences forcible. The illustrations of the book are good in their way, the print and type of the best, and one cannot fail to gather some new ideas on the important subject of which it treats by its careful perusal. E. W. W.

Correspondence.

THE REMOVAL OF SUPERFLUOUS HAIR BY ELECTROLYSIS.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—A report of the following case will be of special interest to all those who read the article on the "Removal of Superfluous Hair by Electrolysis" in the March number of the THERAPEUTIC GAZETTE.

The method which I employed was, with some modifications, the same as that given in that article. Instead of placing the sponge electrode (+) in the patient's hand, I applied it at the nape of the neck, and kept it there constantly, while the electrode needle-holder (—) had an attachment, by means of which I could make or break the current at any moment. I was thus enabled to get along with fewer cells and without loss of time. The pain caused was of no consequence whatever. The needle used was a plain steel sewing-needle of fine quality.

Mrs. W. had for the last ten years been annoyed by a strong growth of hair about her chin and upper lip. She had tried all conceivable remedies, with the result of only increasing the growth through the stimulation thus produced, so that when she came to me for relief she had a beard that would have done justice to a man.

It at first appeared almost hopeless; but, as she was so very anxious to have the growth removed, I determined to undertake the case.

The estimated number of hairs to be removed was fifteen hundred to two thousand, but I soon found that my estimate was too small, the number far exceeding two thousand.

At the first meeting I took out about one hundred hairs, with an average allowance of ten seconds for each hair, and immediately afterwards washed that part with a weak solution of acetic acid, so as to neutralize the alkaline effect of the products of the (—) electrode.

On her return to the office the next day, I found the reaction so very slight that I ventured to take out over three hundred hairs at one sitting with equally good results. The following days I even exceeded this number, so that in nine sittings every objectionable hair on her face was removed.

In not one instance did I apply the needle twice to the same hair, and always applied it to about fifty or more before I stopped to extract them, which is very quickly done, the hairs after the electrolysis being perfectly loose.

After a lapse of about six weeks I found a return of about three per cent., which, after similar treatment, were also completely destroyed, so that now, after seven months, the face of the lady is in excellent condition.

Respectfully,

JAS. A. BACH, M.D.

MILWAUKEE, March 31, 1886.

RHEUMATISM AND CHOREA.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—Having read several discussions of the question whether chorea was complicated with or dependent upon acute rheumatism, I wish to relate a case falling under my observation. Ida R., aged 15 years, was brought to my office suffering from the worst attack of chorea which I have ever witnessed, the power of speech being lost, and all the voluntary muscles seeming to be involved. I administered strychnine, arsenic, and iron in the usual manner, in conjunction with hydrate of chloral and the bromides. I afterwards visited her at her home in the country, and could see no improvement in her case for a week, until she succeeded by motions and gestures in informing me that she had pains in her wrists and ankles, when I began the use of salicylate of sodium in 20-grain doses every three hours, and from that time I noticed a marked change for the better at every visit. I had in the beginning of the case endeavored to obtain the succus conii, having seen it highly recommended in the London *Lancet*, but did not succeed till the third week of my treatment; and the chloral and bromide at that time seeming to have lost its efficacy, I began the use of it in 1-drachm doses four times a day, and its control over the disease seemed to be miraculous. The first prescription for the case was made March 16, and on April 20 there were no symptoms of the disease present. My experience with the succus conii fully convinces me of its value in the treatment of this distressing disease.

GEORGE C. IRWIN, M.D.

SABETHA, KANSAS.

A SPECIMEN OF A GERMAN MIXTURE.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—In your issue of April 15, page 286, there appears an article headed "A Specimen of a German Mixture," and stating that up to recent times it was not infrequently prescribed by "heroic German physicians." I have my doubts whether a "heroic" or not heroic German "*physician*" ever prescribed such a mixture, but it is possible it has been prescribed by German *quacks*, as we have German as well as American quacks in the profession, and certainly you will find the largest percentage in the latter.

A regular German *physician* will never use such a second-handed Latin as appears: "Fiat *mi*stura, digere secundum artem et filtra." He would say, "Misce, digere lege artis et filtra."

Yours truly,

DR. H. HAHN,
German physician.

HASTINGS, MINN.

Notes and Queries.

SAUSAGE AND PUTRID MEAT POISONING.

To the Editors of the THERAPEUTIC GAZETTE:

GENTLEMEN:—May I make the following communication through the THERAPEUTIC GAZETTE? I desire to collect instances of sausage poisoning, or putrid meat poisoning, and should be very grateful to any members of the profession who, having knowledge of any such cases, will be kind enough to com-

municate to me a brief statement of the manner of poisoning, the symptoms, and results. The discovery of ptomaines, and of the probable rôle which they play in tainted meat poisoning, has invested this subject with additional interest, while its relations to sanitary science should secure for it at all times more attention than it seems to receive in our medical literature. With a view of collecting cases for comparison and report, I have made this request, and the assistance indicated will be greatly appreciated.

Very respectfully,

J. U. BARNHILL, M.D.
164 E. TOWN STREET, COLUMBUS, OHIO.

DIAGNOSTITIAL LAPAROTOMY.

At the recent meeting of the American Surgical Association, held in Washington, DR. CHRISTOPHER JOHNSTON, of Baltimore, read a paper with this title (*New York Med. Journ.*, May 8, 1886). He said this operation was as ancient as our race, but in early times was always practised on the cadaver. The *lex regia* of Numa Pompilius required it to be performed upon any woman who died in the twenty-seventh week of pregnancy unless reliable signs showed that the fœtus was dead. The first operation on the living subject was probably performed about the year 1600. In abdominal diseases the question arose, How should the seat of the pathological change be reached? The answer was laparotomy, which made the diagnosis positive in cases of doubt, and was preliminary to other operations which might be required. If the surgeon had no right to refuse to give air to a fellow-creature becoming asphyxiated from obstruction in the air-passages, had he the option of refraining from surgical interference when the primæ viæ were obstructed in their functions? The answer to this question hung first upon the diagnosis, sometimes upon the record of the past, and not infrequently upon the wise boldness of the surgeon. The propositions, then, were: First, that for abdominal surgical affections all possible operations ought to be attempted after the establishment of a precise diagnosis; and, second, that when a just diagnosis could not otherwise be reached, it might and ought to be sought out by an exploratory incision. The mortality of abdominal incision without complication was low. The record with regard to diagnostitial laparotomy was very brief, for, as a rule, when the surgeon approached the case the diagnosis was already nearly positive. The gravity of the operation was largely determined by the time at which it was performed. The abdominal incision intentionally diagnostitial was fraught with so little comparative ill consequence that its high value or necessity might be fairly alleged as an established and proper aid to diagnosis. Of all operations involving laparotomy, those involving the uterus and its appendages probably filled the largest space. Next we had those involving the alimentary tract. Speaking of the Cæsarean section, the speaker said that, comparing the mortality of this operation in former days with the mortality of the Porro-Müller operation, we found that, while shock and other dangers were greatly increased in the modern operation, the mortality remained about the same. The old operation was, as a rule, done under objectionable surroundings by inexpert operators, while the modern operation was done by experts with the best surroundings. We had yet to see what the old operation would accomplish when the same safeguards were thrown around it as were given to the newer operation. When was exploratory laparotomy called for? It should be stated that to a certain extent every laparotomy was diagnostitial. Two great classes in which exploratory laparotomy was demanded or permissible were to be recognized: First, all sorts of cases in which the diagnosis could not be made without its aid. Second, all cases in which, a diagnosis having been made, no definite line of operation could be marked out, and no abandonment of active measures be entertained or justified. As in these cases laparotomy held the key in all cases of doubt, both as to what was the matter and what was to be done, it should be called upon to surrender that key.

DR. A. VANDERVEER, of Albany, said that simple incised wounds of the abdomen, without injury to the abdominal organs, would usually heal without difficulty, even if left to themselves. The mortality was very slight. Even when the injury was more serious, recovery often followed. The cases which gave us anxiety were those in which the bowel was injured and its contents escaped into the abdominal cavity. These patients died inevitably if nothing was done. In these cases laparotomy should be performed. This view was often opposed by the friends of the patient, and often by the attending physician. We had much to do in the direction of teaching the profession and the public the importance of early operation in these cases. Cases were cited of gunshot injuries of the intestine and

of rupture of the intestine produced by external violence, in which the operation might have saved life if it had been permitted by the friends of the patient. The operation, as a rule, would not be permitted until the patient was in collapse, and it was then too late. If possible, the operation should be done in cases in which it would prove successful, so that the surgeon might have an argument in favor of his recommendation, and the masses must be educated to the necessity of laparotomy in the cases referred to. As to the mode of operation, the incision in the median line was by far the best. In some cases it would be impossible to reach the seat of disease by any other incision. In the closing of the wound some recommended several lines of sutures, uniting the different layers of tissue separately. The speaker did not believe that this was any advance on the old method of using sutures, including all the layers of tissue. Where there was great distention of the bowel with intussusception, the discovery of the seat of trouble was greatly facilitated by a procedure which he had seen Tait adopt in such a case. He opened the distended coil of intestine, permitted the gas to escape, and then closed the opening with sutures.

Dr. J. Ewing Mears, of Philadelphia, said that, in considering diagnostitial laparotomy, he would arrange the subject in this manner: In the first place, we should use external manipulation; second, internal examination where this was possible; third, aspiration; and, finally, laparotomy. He regarded laparotomy as much the most serious of all these methods. In this discussion the subject of laparotomy as a means of treatment did not call for consideration. The more experience he gained, the greater was his conviction that the abdominal cavity should not be opened without due consideration. Death was a severe penalty to pay for the perfection of the diagnosis. The tendency at the present time seemed to be in favor of opening the abdominal cavity rather than cultivating that essential skill by which the diagnosis might often be made without resorting to operation. Tait's assertions that opening the abdominal cavity was a matter of very little consequence had led many of the younger members of the profession to perform this operation without due consideration. He had at present under observation a case in which he had made out the existence of an obscure abdominal tumor, and had determined that the patient was suffering, possibly, from carcinoma. He had not felt it his duty to perfect the diagnosis by opening the abdomen. He had carefully watched for symptoms indicating suppuration, when he would operate, not for diagnosis, but to give relief. Having exhausted other methods of diagnosis, he agreed with Dr. Johnston that, if the patient's life depended upon it, we should open the abdomen. He believed that in intestinal obstruction the abdomen should be opened, and that many lives had been lost by want of courage on the part of the surgeon. There was no question as to the duty of the surgeon in the case of gunshot wounds of the intestines.

Dr. Charles T. Parkes, of Chicago, thought that the paper insisted upon the necessity of exhausting all other methods of diagnosis before resorting to laparotomy. In regard to the size of the incision, he thought that made very little difference so far as the final recovery was concerned, but, where the incision extended above the umbilicus, recovery was slower, and attended with more inconvenience. In the cases which he had seen where a post-mortem followed, there was no evidence that the abdominal incision had anything to do with the fatal issue. In regard to the operation in cases of intestinal obstruction where the exhaustion was extreme, several years ago he was called to see a case of nine days' standing. The patient was in a state of extreme collapse. He was anæsthetized and the abdomen was opened. A small cyst was felt immediately beneath the fingers. Under slight pressure it ruptured, and a quantity of offensive pus escaped into the abdominal cavity. This patient recovered. In such a case the best diagnostic skill could not determine the cause of the obstruction. In the case of a child 18 months of age, in which the operation was declined, the post-mortem revealed intussusception of the small intestine, which was without adhesions, and could readily have been overcome. He thought the abdominal opening should be made in the median line. In regard to closure of the wound, the simple suture passing through all the tissues had been followed by such good results that he thought we need use no other. Where there was much distention of the intestine he considered the method by opening the bowel the best. He had used the exploratory needle on several occasions, but it was necessary to make a number of punctures. In two instances he had found extravasation of fæcal matter through these punctures.

Dr. L. McLane Tiffany, of Baltimore, remarked that during the last year he had met with four cases of what he believed to be

intestinal obstruction. In all four laparotomy was proposed. Two patients refused, and both died. Two accepted, and one of these recovered. The one that died was a woman aged 73, in whom the obstruction had lasted seven days. The intestine was enormously distended, and in the examination ruptured with the escape of the gas. After this it was extremely easy to find the seat of constriction. He thought the shock would be less if the intestine was emptied. In regard to the time at which the operation should be performed, no positive rule could be laid down. It must depend upon the acumen of the physician who saw the case. He agreed with the reader as to the great value of laparotomy as a diagnostic operation. It was not possible for any human being to recognize through the abdominal walls the manifold conditions of the organs present. In regard to pistol wounds of the abdomen, it frequently happened that the intestines escaped injury, and in these cases it was a question when the operation should be done. The opening of the abdomen would not, he thought, do much harm.

Dr. J. F. Thompson, of Washington, wished to record two cases of laparotomy for the purpose of diagnosis. A woman, aged 35, had the history of an abdominal tumor lasting for several years. It presented the appearances of an ordinary ovarian tumor, with the exception that it had two sinuses communicating externally. After frequent examinations by various surgeons, it was decided to make an exploratory operation. One sinus was traced back to the peritoneum without reaching any satisfactory explanation of the tumor. The peritoneum was then opened and the finger introduced, but no tumor in the cavity could be felt. Toward the abdominal wall a mass, apparently imbedded in the tissues, could be distinguished. The wound was closed, and the patient recovered from the operation. She subsequently died, and the post-mortem showed that the tumor was an enlarged spleen, which had fallen down below the umbilicus and become attached to the abdominal wall.

The second case was one of carcinoma, involving the transverse colon, running directly through the mass. There was also an attachment of the growth to the liver. The abdomen was closed; the patient recovered from the operation, and was still living.

Dr. W. H. Carmalt, of New Haven, said that, some time ago, he was requested to operate in a case of intestinal obstruction, but the collapse was so great he thought that it would not be proper to do so. Within thirty-six hours the patient died. The post-mortem showed that the obstruction was due to a band of adhesion. If the operation had been performed early, the patient might have recovered. He considered it important to relate unsuccessful as well as successful cases.

Dr. Johnston, in closing the discussion, said there was a certain amount of hesitancy on the part of surgeons in regard to operating in cases of abdominal injury, on account of the people and on account of juries. To overcome these objections, it was necessary to educate the public to the true state of affairs. In cases where the bowel was opened, laparotomy led us to the seat of disease, and, if anything could be done, we were then able to do it.

CALOMEL AS A DIURETIC.

The action of calomel in causing diuresis in morbid conditions with dropsy is not generally recognized. In health, indeed, it may be said that the drug has no such action. Dr. Jendrássic has found in cases of cardiac dropsy that calomel in appropriate doses causes well-marked diuresis, a "sort of diabetes insipidus," by which the results of want of cardiac compensation, dropsy, and œdema are dissipated. The effect comes on within twenty-four hours, 1½ grains of the drug being given three to five times a day. No diarrhœa is usually produced; but in some cases it had to be prevented by the administration of laudanum. Salivation and stomatitis were obviated by the prescription of a chlorate of potassium gargle from the first. The result in all cases in which the treatment was adopted was beneficial, no unfavorable depressing symptoms being noticed.—*British Med. Journ.*, February 13, 1886.

BACTERIAL PATHOLOGY.

With the conviction that a little humorous dessert will contribute to the digestion of the numerous therapeutic dishes served to our readers by the Gazette, we present to them some choice morsels picked from Dr. Nordau's interesting Parisian epistle to our Viennese contemporary, the *Wiener Med. Wochenschrift*, No. 8, 1886:

"The last of the valiant and dreaded enemies has surrendered. Stricker has hoisted the white flag and entered the camp of the microbio-pathologists with flying colors. He was one of those who had fought most bit-

terly and more persistently against the new faith, objection to which is at the present day only excusable in the man born blind, for he alone is not open to the *ante-oculos* demonstration of the microscope, the test-tube, and the pure-culture. But lo! there is still one pagan knight who is not to be converted, not to be conquered. Boldly and proudly he upholds the banner of the humoral (or is humorous now the proper adjective?) pathology. Not he that fears the impinging phalanges of the bacilli, shrinks before the spirillæ pickets, or loses his sang-froid at the approach of swarming spirochetæ. This knight *sans peur et sans reproche* is Peter, Prof. Peter, of the Faculty of Paris. Like Horatius Cocles, he fights alone against an army. Maybe, however, he only wishes to carry out Victor Hugo's heroic words: 'Et s'il n'en reste qu'un, je serai lui-là!'—And if but one is to remain, it shall be I. We all know of the reverend Pastor Knack, who bravely called Copernicus a liar, and defended the rotation of the sun around the earth. Knack's death was a hard blow to the humorous papers, still Peter is alive, that is some substitution. Peter's opening lecture of the last winter course, before the crowded auditorium, will remain forever memorable in the annals of medicine. Though it was full of *chic* and Attic salt, it cannot be said to have been seasoned properly, for the carnival was not to commence for some months yet."

We regret that our valuable space cannot be more exhaustively devoted to the amusement of our readers; a brief abstract of some few passages of Peter's lecture, which, intending to ridicule Koch, Pasteur, and Lustgarten, the discoverer of the syphilis-bacilli, ridiculed actually Peter alone, is all we can give:

"The bacillus discovered by the 'Berliner Koch' (why not the Prussian Cook?), and about which so much 'fuss' is made, has no diagnostic value, as it is found in tuberculosis, syphilis, leprosy, and even the preputial smegma of healthy persons. True, there are some trivial differences in these bacilli as to form and coloring matters, but what does that signify, as bacteriologists admit themselves that morphiological differences play no essential *rôle* in the determination of the nature of a bacillus.

"What deplorable therapeutic results are there not ensuing from the views of the microbio-pathologists! They separate externally the tubercular subjects, and internally they give them alleged bacillus-killing drugs, such as creasote, carbolic acid, and heaven knows what other dirt. ('Et on ne sait quelles saletés.') I shall not cease to fight with word and letter against this mental aberration which confuses the brain of profession and laity alike."

No wonder that the impulsive youth from the quartier Latin brought a thundering ovation to their enlightened and courageous teacher, who had thus disproven and conquered definitely the "Berliner Koch."

In conclusion, we have yet to allude to the nonsensical tribute paid to Peter by the *Evènement* (a Paris newspaper), which brought the picture of Peter in the *rôle* of George the Dragon-killer, and proclaimed at the termination of an article exornated with the usual Gallic *élan* and prestige, "And so has the common sense of the Frenchman again annihilated a chimerical product of German brains."

MORPHINE IN THE TREATMENT OF CONVULSIONS OF INFANTS.

Dr. George T. Fanning, of Stony Brook, N. Y., reports in *The Medical Record* (April 24, 1886) the two following cases of convulsions in infants, in which morphine was given with ultimate good results. The first case was that of a girl, 2 years of age, who, when first seen, had been in rigid convulsions for about two hours. Potassium bromide and belladonna were given at short intervals for nearly three hours without relief, when it was determined to try morphine, and a dose of $\frac{1}{6}$th of a grain was accordingly given. In about half an hour the convulsions stopped, and the child stopped breathing at the same time. Artificial respiration was at once begun, and kept up for nearly an hour, at the end of which time natural breathing began again. The second case occurred in a boy, $2\frac{1}{2}$ years old. Supposing the convulsions to be due to intestinal irritation, Dr. Fanning ordered an emetic and an enema, and gave chloroform to relax spasm. The convulsions ceased, and the writer went away, but was recalled in about an hour, the messenger stating that the child was worse than ever. He was found in a very rigid condition, with one pupil widely dilated and the other contracted. After an unsuccessful trial of chloroform, $\frac{1}{80}$th of a grain of morphine was given hypodermically, and in an hour $\frac{1}{10}$th of a grain more. The pupils both became contracted, the breathing was slow and stertorous, but the convulsions continued on one side. The chloroform inhala-

tions were continued for about two hours, when improvement occurred very slowly, and the child finally recovered.

A CASE OF COMPULSORY AND EXCLUSIVE BACKWARD MOVEMENT.

In *La Rivista Clinica* of June, 1885, DR. MAZOTTI reports the following rare case: An alcoholist, 66 years of age, was admitted into the hospital of Bologna for the treatment of scurvy. After his recovery from this affection, it was found that, in spite of the greatest efforts, he could only walk backward, and that after that he had to turn around his own axis. These movements, of course, constantly imperilled his life. He soon succumbed to pneumonia, and the examination of the brain showed an atheromatous condition of the vessels at the base. We wonder that the inspection of the spinal cord was omitted, which might have given some clue for these peculiar symptoms.

A CLASSICAL REMEDY FOR HICCOUGH.

DR. A. G. GIBSON calls attention in the *Edinburgh Med. Journ.*, April, 1886, to the old Hippocratic aphorism, "Sneezing occurring after hiccough removes the hiccough," and suggests, in cases of hiccough, the production of sneezing by tickling the nostrils, and he tells us that he has in this way been very successful in the arresting of this disagreeable affection. Hiccough, as well as sneezing, is one of the specially modified respiratory movements, and it is quite in accordance with what we know of the transference of nervous action, that the spasmodic contractions of the diaphragm should cease on the induction of the explosive expirations which constitute the acts of sneezing. There is one point, however, which deserves special mention. It is not necessary that the stimulus applied to the nose be followed by sneezing. The application of a gentle irritant to the nasal mucous membrane may be quite enough to put a stop to the hiccough, by diverting the nervous energy into other channels, although it may not be of sufficient power to induce sneezing.

A CASE OF CHROMIDROSIS, OR CHROMOCRINIA.

DR. FÉRÉOL communicates to the *Bull. de l'Acad. de Méd.*, 1885, No. 33, the case of a hysterical young girl, who, at times of nervous excitement, presented a peculiar blue coloration of the under eyelids. There was no perspiration observable during the appearance of this phenomenon. The blue color could be readily removed by vigorous rubbing with a cloth, but grew more intense whenever the girl's attention was directed to her condition. In the axilla and over the sternum Féréol likewise occasionally noted this coloration. Examined microscopically the fragments of the pigment presented an appearance similar to the particles obtained by breaking up dried Canada balsam. The dried epidermic cells contained besides numerous granules of a bluish coloration.

THE EMPLOYMENT OF LACTIC ACID AS A CAUSTIC.

In the *Centralblatt für Chirurgie*, No. 12, 1885, Prof. Mosetig made the following astonishing announcement, "Acidum lacticum is a means of destroying morbid tissues, and distinguishes itself from all other hitherto known and employed caustics by sparing the healthy tissues."

It is, however, a well-known fact that all caustics destroy far more easily morbid than healthy tissues, and besides, the mentioned property of lactic acid is now disproven by the experience and publication of DRS. SPITZER and HERMANN, of Vienna, in the *Wiener Med. Blätter* of February 25, 1886.

These observers publish eight cases of lupus and epithelioma treated in the Allgemeines Krankenhaus in Vienna with concentrated lactic acid as proposed by Mosetig, and state their conclusion as follows:

1. The pain produced by the cauterization with lactic acid is at least as great as that caused by any other caustic.

2. The patients prefer invariably any caustic to lactic acid.

3. The action of lactic acid resembles that of other caustics, but is less energetic.

4. Healthy tissues are not spared any more by this than by any other caustic.

5. Lactic acid has to be employed for a much longer time than chloride of zinc and other energetic caustics.

In this connection we would call attention to the reports published in recent numbers of the GAZETTE where a large number of authorities were quoted as claiming most favorable results and confirming the statements of Mosetig-Moorhof in all particulars.

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